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VOCATIONAL GUIDANCE

William Hawley Smith

THE Editor of this magazine has asked me to write a paper on "Vocational Guidance," and I gladly accept his invitation to do so. The subject is one which just now looms large on the educational horizon, and I am greatly interested in it in more ways than one. That is why I am willing to write about it. It is important and timely—two qualities that do not always obtain in educational writing.

And if I am to say my say on this issue, it is only fair to my readers that I should let them know what qualifications I have for making a deposition regarding it. *I* never like to "read after" people "who do not know what they are talking about"; and by the same token I feel that I have no right to ask people to read after me, unless I know what I am talking about; so here is what I have "to go on," to use the language of the common people of this world.

In the first place, what knowledge I have of this subject has come to me thru the gate of experience rather than that of theory; and, as I see it, that is a pretty good opening from which to gather knowledge that will stand the strain of every-day life. Here follows then, a partial list of my experiences in Vocational Guidance.

By far the greatest efforts that I have ever made in such business pertain strictly to myself! For nearly seventy years I have been busy, all of the days and a good part of many nights, trying to guide my footsteps into vocational ways that would lead me to success—for I take it that this is the mission of vocational guidance, namely, to direct the steps of the guided ones into ways that will lead to their success in life. So I began my work in vocational guidance by practicing on myself.

Next, wife and I have had two boys who had to be vocationally guided, and it has been a "grown man's job" (and a grown woman's too) to get them going in ways that led to success.

Then, as a teacher for a number of years, I had a miscellaneous lot of boys and girls whom I tried to help along in this supreme affair of their lives. Last, but by no means least, I owned and managed and "ran" a furniture factory for five years, doing a business that covered nearly all of the western states, and more than half of the "help" I had in the shop was composed of boys from fourteen to eighteen years of age. These all needed vocational guidance, and it was up to me to direct them, so that they would not only be successful in their work but would not bankrupt me while they were learning the trick!

And I want to say, right here, that I wish all vocational guiders were compelled to be situated as I was—that they were *forced to bear the expense of their failures to "guide right" the boys and girls who apply to them for direction!* If this condition could obtain universally, I am sure that those who undertake to become "experts" in this particular calling would be quite careful how they entered upon this particular profession as a *means of livelihood!*

The above statement then, is a fair invoice of my qualifications for writing a paper on Vocational Guidance.

As I understand it, the particular purpose of vocational guidance is to give, to those who come after, the benefit of the experiences of those who have gone before; and, to point out to the following ones, the lines of life on which they can be successful.

As society is now organized, the prime element (and I might almost say the sole element) for success in any calling or profession is *ability to compete!* Think that over for a minute!

If you think clearly, here is about the line of your thought: So far as the business world is concerned (and most of the world is now strictly business, at least so far as getting a living is concerned; and all but the very rich have to get a living these days, and *they* do not need vocational guidance) competition is not only the life of trade but it is an experience that every individual has to go up against; and in the struggle which this condition forces upon mankind, only those can win who *can surpass in efficiency* the men and women they are striving with.

That is a hard doctrine, but it is a fact that all have to face—a situation and not a theory—and we are compelled to make the best of it whether we like it or not. That is, we are so compelled unless, as I have just said, we are rich enough not to have to make any struggle whatever for existence, but can be "carried to the skies on flow'ry beds of ease" as the old hymn has it.

"Which things being so" as Caesar used to say, here is the way the situation appears to me: A person can *compete* successfully *only* in the line of life, or in lines of life, in which he or she has natural inborn ability—in which that particular person is "born long" if you will. Anyhow, the obverse of this is true, that a person can never compete successfully in a line of life in which

he has no native or initiative ability; in which he is "born short."

Think over these two propositions for a minute, yes, longer than that and see how they seem to you.

And I think I shall take time and space, just here, to emphasize this matter of native ability, inborn resourcefulness, as a primary factor in determining vocational possibilities. I know that there are multitudes of people who as yet refuse to accept such idea of human possibilities, but the longer I live, the more I am convinced that the way we are born determines, in a large measure, the things that we can do in this world.

Only today I had a letter from a very prominent educational gentleman in this country, in which he said that he believed it was possible to teach almost any child almost anything, provided you "caught him young enough." And I know that his theory is one that has been very generally accepted among educators in days gone by; still, I "ha' me doubts," as the old Scotchman says! And such doubts are founded on experience, or experiences, of my own and of large numbers of other people with whom I have come in contact. Let me give a single instance:

Oliver Wendell Holmes used to say that, in order to get an ideal child you needed to begin with his great-grandparents! The remark is true, in a way, and yet it is of no great practical value, certainly not for the readers of this paper. None of these could get any particular benefit, now, from their great-grandparents; and it is a question how much influence they could exert upon their great-grandchildren. The issue that is before us now is, what to do for the boys and girls of today to lead them into ways of life in which they can succeed.

But to my instance anent catching them young enough.

My wife's father was a remarkable musician who could play any instrument he could get his hands on, or sing anything that he could see.

Now it was his ambition, when he became a married man, to have a daughter (he wanted it should be a daughter) who should be a great musician. This is not going back to the great-grandfather, but it is going back to pre-natal influences, of which so much is being said in these days.

Well, in due course, wife was born, and there was great rejoicing in the heart of her father over the event. He had caught the child young, and it was the desire of his heart to fashion her musically, according to his lofty ideals.

And to this end, from her very earliest infancy he surrounded the child with everything that would tend to stimulate and build up the musical part of her being. He put her at the piano, with the best of teachers, long before she could span an octave. She always went with him to musical conventions, and as a child heard the best of concerts and operas. When she was seven years old, he had a most accomplished pianiste come and live in the family, in order that his daughter might hear the best of piano music. This woman was in the family for two years, during which she gave special attention to wife's instruction upon the piano. In this way the dear girl worked along to her mature young womanhood, when she became my wife.

We have been married forty-five years, and if she has touched a piano during all that time, she has done so when I was not at home!

She can't play; and, thank God, she knows she can't play! And yet she was "caught young," and put to it hard, for more than twelve long, weary years.

But don't you think for a minute that my wife is a dull woman. I wish you could see the pictures that she has painted, and then you would know that she was born long in art and short in music; and if she had had a vocational guider who knew his business when she was young she might have been saved an infinite deal of useless work, and have delighted in an infinite deal of useful work in the earlier years of her life.

(Right here my stenographer stops me, to tell the story of her sister on whom a small fortune was spent in order that the said sister might become a first-class musician, but all to no effect. The young lady came home, after years of hard study in this country and Europe and became a first-class dressmaker! I wonder if a vocational guider could have headed her right when she was a young girl. What a saving, all along the line, it would have been if she could have been so directed.)

So then the two points I want emphasized in this matter of vocational guidance are, first, inborn ability to start with, and competitive efficiency to end with. It seems to me that these two points include the prime necessities which vocational guidance must have regard for, in whatever assistance it can give to any individual as to what he shall do, or shall not do, in this world.

And now something definite as to my own experiences, as I have tried to vocationally guide myself and others.

As to myself, quite early in life I found that, in more than one way, I was "born long," and that in fully an equal number of ways, I was "born short." May I be excused if I instance, quite carefully, just what I mean in saying this?

The readers of this paper probably know me best as an author, or because of the work that I have done upon the lecture platform; and as I look back on it now, I can see clearly that I was "born long" on both of these counts. As a boy in school, my compositions were often read by the teacher to the whole school; and whenever the school-committee came to inspect the school, or visitors were present, "Willie Smith" always had to read, or speak a piece. To be sure, I did not count much on these facts, at that time in my life; but if I had been in the hands of a vocational guider then, he should have taken these items into account.

On the other hand, all my efforts in the line of map drawing or making pictures of things were the most total and absolute failures, tho I worked on these a thousand times harder than I ever did on my composition writing or speaking pieces. Again, when I was twelve years old my father gave me a watch, and when it refused to run I made a little screw-driver out of the blade of my knife, took the watch apart, found out what the matter was, put it together again, and it ran—a fact which would seem to indicate—that I was born

long, mechanically, as the later years of my life proved that I truly was. My furniture factory was a success, as it never would have been, had I been born mechanically short.

On the other hand, I have not a particle of ability as a "trader." My brothers could swap jack-knives, always to their own benefit; but if ever I tried a deal of that sort, I went bankrupt at once. I never traded horses but once, and then I paid ten dollars to boot between a sound little mare that I owned, and a spavined ring-boned horse which was not worth the ten dollars that I put up on the deal. And yet I was reared on a farm, and ought to have known about horses; but I was born short "horseward."

So the upshot of my experience in vocationally guiding myself is, that I have found I could *compete* along the lines in which I had native ability but that I failed miserably if I tried to move out along lines in which I was born short.

I never took an elocution lesson in my life. I do not say this to boast, nor do I say that it is not a good thing for some people to take elocution lessons, but I do say that, without any instruction whatever, beyond just keeping my eyes and ears open, and doing the thing that God had given me the ability to do well, I succeeded in winning a position well to the fore among the platform artists in this country. But I never could have won a foremost position amongst the horsetraders of this country! The point is, that, had I been vocationally guided in the days of my youth by an expert, I should never have taken my chances on a horse trade.

So much for my experience with myself. As to our boys, I have worked by the same methods that I used in directing myself; and, in both cases, I have found that their success, or failure, has been determined, almost entirely, by their native and initiative abilities.

As for my pupils in school, that is too long a story to tell here. As I have met some of them later in life, I have found that a goodly number of them made successes of their lives by following suggestions which I made to them as to what they could do, and how they could do it. There are other cases in which I am forced to say that my diagnoses were not correct. Indeed, it is a ticklish business, this trying to advise young people what they should do and how they should do it.

But my experience in the furniture factory came nearer to corresponding to work that must be done by the vocational guiders of today than anything I have yet told of. As I have said, I employed a large number of boys, and these I had to fit into the different positions which the necessities of the work I was doing required.

The boys were, nearly all, those who had dropped out of the grades in school. I do not think that, in all the five years, I employed a single boy who "had any use for grammar;" and yet of the two hundred or three hundred boys that I dealt with during that half-decade there were some very bright fellows who have since grown into a manhood that they may justly be proud of.

And it was not an infrequent thing for me to find boys who made applications for positions in the mill who could never make any success in that line of work. Indeed, for much of the work that had to be done, the boys who could do that particular kind of work had to be chosen with the greatest of care. And here I found that there were some who could do one thing very well, who could make no success whatever in other lines of work that had to be done in the same building.

Let me give two instances: I had in my employ a stout, able boy about 18 years old, who had been doing some general work; and because one of my men who was running quite a complicated woodworking machine left me, and this boy was stout enough to do the man's work, I thought to give the boy the man's place. Now he was a bright, able fellow, very quick in many respects; and I did my very best to teach him to manage the machine on which he was at work, but all to no avail. I could not have afforded to have that boy work at that machine if I had been paid fifty dollars a week to keep him in the place. This, tho he tried hard to succeed at the job, and I did my very best to teach him how; and I knew how myself, and had counted upon myself as a teacher of no small ability; but I never could teach Henry to run that machine.

The other side of the story is, that I tried the boy in the varnish room in finishing furniture, and there he was little less than a genius. He saved me six hundred dollars on one single order for furniture, by the deft and careful way in which he finished it, and this without any particular guidance on my part. He loved this work, and he held the position, at a good salary, just as long as I ran the mill. Today he is working at the same vocation, in which he is eminently successful.

Another boy, who is now at the head of a large manufacturing establishment and who was in my employ for something more than two years, showed, from the very first day he came into the mill, that he had rare ability in adapting means to ends, mechanically, on almost any machine with which he worked.

Of course, there were mediocre boys; and still, I never found a single one whose efficiency could not be largely increased by putting him into a position in which he had native ability to do the work required of him—in which he could originate, create, and, in his own right, do what he had to do in the best possible way.

What I want the reader to see is, that my success, or my failure, in that mill, all turned on my ability to vocationally guide the boys with whom I had to deal. It took me a number of months to learn this fact, for I was a stranger at the business when I took hold of it. My bookkeeper had to call my attention to the fact, more than once, that I was not getting, out of the material that I was making up, the returns that I ought to get if the balance was on the right side of our ledger; which means, as I have heretofore noted, that any mistake that any boy in that mill made, I had to pay for; and that fact was what forced me to be exceedingly careful in the vocational guidance that I gave to the boys whom I employed.

So much for my experience. Now a word as to the experiences of the teachers who read this article, and who may undertake to vocationally guide the boys and girls with whom they come in contact. I wish to say that I believe it is next to impossible for one to do good voca-

tional guiding who has not had practical experiences in some of the varied callings of life.

That is, I do not believe that it is possible to become an efficient vocational guider merely by studying the theory of that art. Doubtless it is true that measurements of the physical exterior of a boy may tell something of his capabilities. Doubtless it is true that some conclusions can be reached from "reactionary" times and various other phenomena that pertain to young humanity. Doubtless the shape of a person's head may have something to do with what the person that lives under that head can perform; but it is a question in my mind as to whether or not it is possible to determine the range of possibilities of any given individual, merely by the shape of the head, or any number of merely physical characteristics.

Indeed, my writing just this, suggests that I say, without more ado, that, while I do not want to be skeptical, yet my experience leads me to doubt the possibility, we will say, of classifying individuals as on a whole, so many years old, and saying that they can never become efficient beyond the average of such age. When I was 17 years old I was the peer of many a grown man mechanically; and now that I am seventy, I am not the equal of many a child of ten, artistically; and I cannot believe that any set of measurements that might ever be put upon me could ever truthfully say that I had attained to a certain given age, beyond which I could never go—taking me as a whole. This remark may not seem germane to the issue that I am discussing, but if the reader will think about it pretty intently, he will find that it is not entirely foreign to the subject.

To teachers who read this article I should like to say, without being too didactic, if you undertake anything in the way of vocational guidance for your pupils, do not be too much in a hurry in the advice that you give. Do not think that the whole matter can be determined at a single sitting. Do not think that, by merely looking a boy or a girl over, or measuring them with mere physical apparatus, you can successfully map out their future careers. Do not think that any single act, or failure to act, will determine, in and of itself, what the child ought or ought not to do. My notion is that any vocational guidance worthy the name can only be given after a long study of the most careful sort; after the most patient and painstaking observation of the individual to whom such direction is given.

I believe most firmly in Vocational Guidance. I believe there are many men and women and, especially teachers, who can become experts in such a profession or calling; but, with all their theoretical and philosophical doings, they must mingle common sense, and, above all, *love* for the individual with whom they are dealing. I do not believe it is possible for a cold and formal, unemotional, loveless man or woman ever to become a good vocational guider.

Take a genuine interest in any pupil whom you may try to guide vocationally; do your very best to find out their native capabilities; note well the points on which they are "born long" and "born short," and head them in the direction which their greatest native strength indicates they can best move out on. Whoever will do these things can become a successful educational guider; whoever cannot do these things, had better choose some other calling in which he can honestly earn the money he takes for the work he does.

THERE can hardly be any complete division of labor between the designer and the manual worker in handicrafts without disastrous results. The designer who is not a craftsman not only lacks the practical basis of apprehension that is needful, but he becomes sophisticated, and too much affects design. The craftsman must be, for the most part, himself the designer; but he must be imbued with the spirit of his craft, and have regard to it primarily. If he think too much of design, and strive for novelty, he will surely go wrong.—*Charles H. Moore.*

Christmas Problems for the First Four Grades

Martin F. Gleason, Supervisor of Drawing and Construction, and Edna Keith, Supervisor of Primary Grades, Public Schools, Joliet, Ill.

THE Joy which our children find in handwork is never so great nor so apparent as it is while they are making the little gifts which, when completed, are taken home to present to someone whom the makers hold very dear—usually Mother. There is a double joy of the most wholesome kind in this work—the joy of doing and the anticipated joy of giving.

The greatest joy that the mother obtains from the little article which her child brings is the fact that his or her own little hands fashioned it. We want the child to know this and to feel, when the problem is completed, that it is the product of his own efforts and because of this great care is taken to assign only those things to the different grades which the children are able to handle.

We endeavored so far as possible to keep in mind these general points which should govern the planning of this sort of work.

First. The problem must be based on general knowledge and skill obtained in construction work previously done. By doing this the labor which is attached to the making does not become so burdensome as to eliminate the joy.

Second. It must be something useful in most homes.

Third. It must come within a reasonable cost. The materials must be kept simple and inexpensive, with much attention given to combinations of color so as to put as much of the Christmas spirit as possible into the gift.

Fourth. Its construction must be such as can be

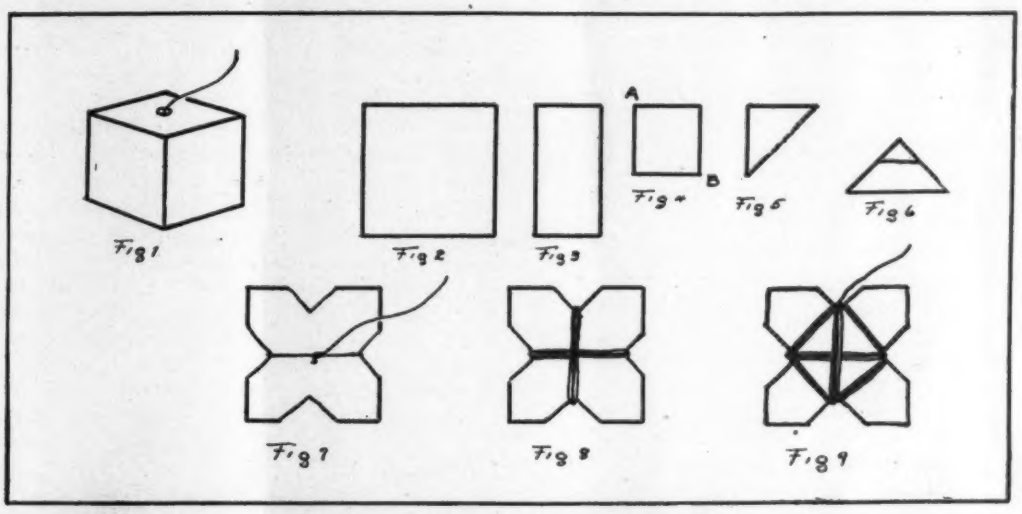


Plate I. Drawings to Illustrate Making of Cotton Winders.

While keeping the making of the gift within the capabilities of children of certain grades its "use side" when it reaches home is not lost sight of and we try to avoid making problems which are suited to only a few homes. It must go into the better homes as well as into the poorer and be found useful to at least some small extent.

Pins, needles, buttons, spools of darning cotton and thread are used in every home and some device for taking care of these articles is usually an acceptable gift to those people who take care of the household. These notions, as they are commercially called, have determined at various times the character of our Christmas problems.

In taking an inventory of what our children were able to do that might be of value in this work we found that their ability to make boxes, books, portfolios, etc., was of much advantage and it was upon this ability that we based the general planning of the gifts.

easily and advantageously divided into lessons of ordinary length.

Herewith are given plans and directions for making some of the problems which we have found unusually attractive and practical to the children and to their parents:

Darning Cotton Winders in Box.

First-grade children worked out this problem with much success. More explicit directions are given for it than for any of the other problems simply to show how the work was divided into regular lesson periods; and to show how it may be systematized so as not to detract from the efficiency of regular work as our work for special days is sometimes apt to do.

Material needed:

1 piece tinted paper 5⅞″x5⅞″ for box.

1 piece tinted paper 6″x6″ for cover of box.

1 piece manila drawing paper 8″x8″ for cube to hold cotton.

1 piece light weight paper 2″x2″ for making pattern.

3 pieces cardboard 2″x2″ pink and white for making winders.

1-3 spool white darning cotton.

1-3 spool black darning cotton.

1-3 spool brown darning cotton.

The making of this gift was divided into five steps each taking one of our regular periods of twenty minutes.

First Step. Making cubical box to keep cotton from becoming soiled while being wound.

The 8″ square of drawing paper was folded into sixteen squares and one row of the squares cut away. A ball of cotton was put into the box with the end of the cotton drawn out thru a small hole cut in one side of the box. Two of the squares from the row cut away were pasted over the opening left in making the box. (Plate I, Fig. 1.)

Second Step. Making the pattern for the winders.

A 2″ square of light weight paper was folded as shown in drawings on Plate I, Fig. 2, 3, 4, 5, 6. Holding the triangle, Fig. 5, with the long edge horizontal, a single cut made the pattern. It was necessary for some children to make several trials before getting a satisfactory pattern.

Third Step. Cutting the winders from the pink and white cardboard squares.

The pattern was laid on the cardboard and the triangle on each of the four sides traced. They were then cut out. This was repeated on the two remaining squares.

Fourth Step. Winding the cards.

The end of the cotton was tied with a common knot around the card. (Fig. 7.) Then with all the children counting together "1, 2, 3, 4, 5," the cotton was wound five times vertically around the card. The card was then turned so that the winding just done was horizontal and the children counted and wound again vertically five times. (Fig. 8.) The card was turned so that the two windings were held diagonally making two of the arms horizontal and two vertical. The right arm was then wound vertically five times and the card turned so that the wound arm was held at the bottom. The arm now to the right was wound five times. This was repeated until all four arms were wound five times. (Fig. 9.) This winding of the center and all arms was repeated five times.

Each child then changed his ball with someone who had a different color and the winding proceeded as before. A second change was made so that each child had three cards wound with white, black and brown cotton. This gave each child his one-third of a spool of each color.

The winding could not all be done in one twenty-minute period, but it was found that many of the children soon became skilful enough to do it for seat work without supervision.

Fifth Step. Making the box to hold winders.

The box was made after the plan given on page 58, of the August number of this Magazine, using a 5⅞″ square for the box and a 6″ square for the cover.

From start to finish, the First-Grade child was able to make every step of the gift, and when taking it home felt the joy of having it as the result of his own efforts.

Pin and Needle Book.

This problem was worked out in Grade II but is not too difficult for a First-Grade class.

Material needed:

1 piece tinted paper 4½″x6″ for cover.

1 piece drawing paper 4″x5½″.

1 piece light weight white paper 4″x5½″.

1 piece figured challie 5½″x7″.

This problem may be made without binding the edges of the cover paper. However, this process adds

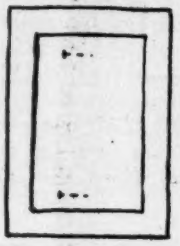


Plate II.

much to durability and appearance. If this is done a strip of paper 21″ long and about ¾″ wide will be needed in addition to what is mentioned above. This may be folded the long way down the middle and pasted over the edges of the cover paper before it is sewed.

Pin piece of drawing paper to wrong side of challie as shown in Fig. 1, Plate II. Apply paste to paper about ¾″ all around the edge. Turn the cloth over edges without cutting the corners. Paste light paper 4″x5½″ over the pasted side of this for a lining. Place in a press until dry. Sew this into the cover paper using stitch given in August number of the Magazine, Page 60.

One side of the book may be used for pins and one for needles.

Darning Cotton Spool Holder.

The Third-Grade pupils made this gift with much success. A figured challie was used to cover the pieces of marbled jute board which were put together to form the holder.

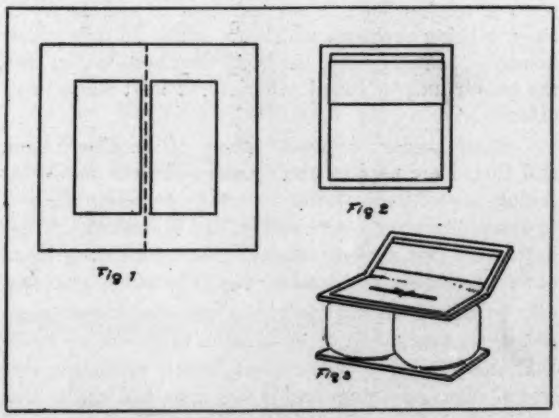
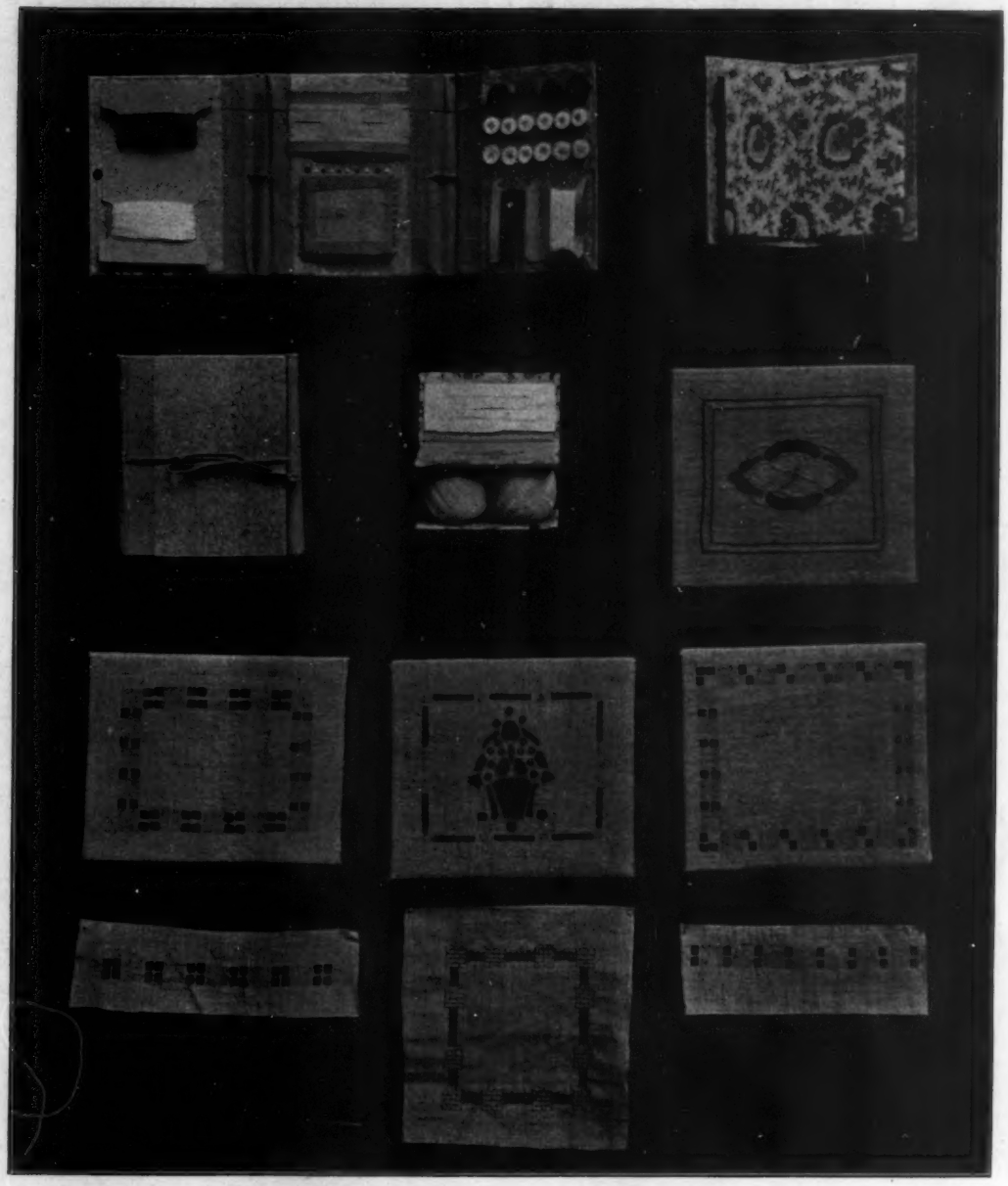


Plate III. Details of Cotton Spool Holders.

Material needed:
3 pieces jute board 1¾"x3½".
1 piece challie 5½"x5¾".
1 piece challie 3¾"x5½".
1 piece tinted paper 3¼"x3¼" for lining.

indicates folding. Leave ¼" between boards. Paste should be applied to the jute board instead of to the cloth.

Figure 2 shows challie turned over the edges of board and the lining paper pasted on. Notice the way



CHRISTMAS GIFTS MADE IN THE JOLIET SCHOOLS.

1 piece tinted paper 1¼"x3¼" for lining.
1 piece soutache braid 9" long.
2 spools darning cotton.
Cotton flannel for needle holder.
Needles.

Figure 1, Plate III, shows a piece of jute board placed on the unprinted side of challie. The broken line

in which the ends of cotton flannel for needle-holder are pasted over the edges to the back of the lining paper. Figure 3, Plate IV, illustrates this method.

Figure 4 shows the completed article and illustrates the way of tying the spools into the holder. The lower piece of the holder is made by covering the piece of jute board with challie and lining.

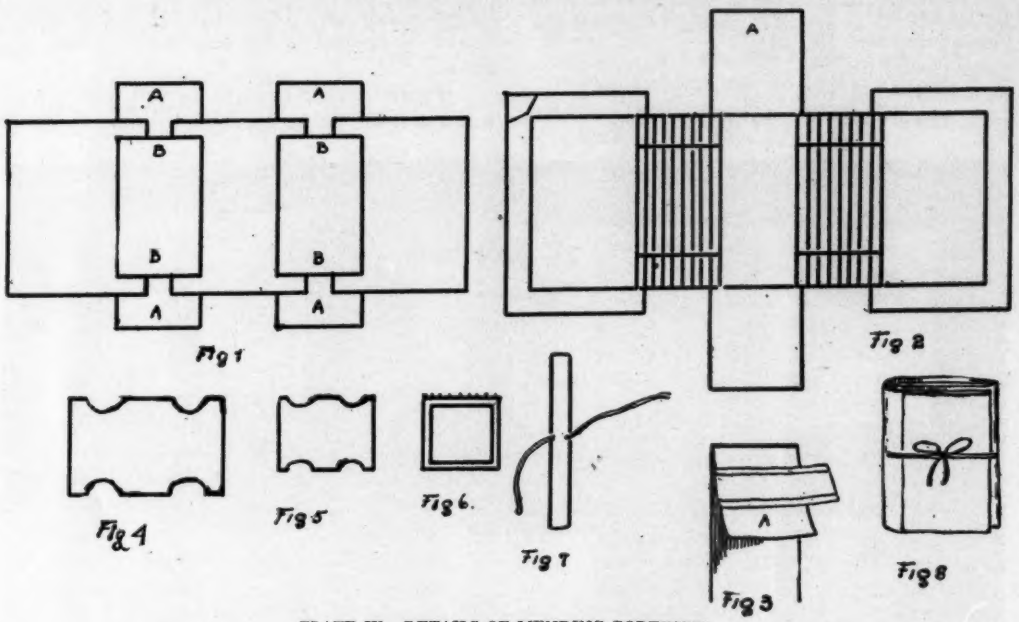


PLATE IV. DETAILS OF MENDING PORTFOLIO.

Mending Portfolio.

This problem was carried out in the Fourth Grade and proved very popular with children, parents and teachers.

Its usefulness is at once apparent. This fact appealed to the children and their parents. Its usefulness, the decided interest which the children had in the problem, and the easy division of the making into profitable construction lessons appealed to the teachers.

Material needed:

3 pieces jute board 4″x5″ for portfolio.

2 pieces jute board 2″x2¼″ for pin holder.

1 piece manila board 2½″x4½″ for darning cotton winders.

1 piece manila board 2″x2¾″ for thread winders.

Paper.

2 pieces 4″x6½″ to cover end boards.

1 piece 2¾″x11″ to cover middle board.

2 pieces 3¼″x4½″ to line end boards.

1 piece 2½″x3¼″ on which buttons are sewed.

1 piece 1¾″x2″ to cover pin-holder.

Art Vellum.

2 pieces 2½″x7″.

2 pieces 2½″x4″.

Narrow strip with which to bind pin-holder and needle-holder.

Cotton flannel 1½″x4″ for needle-holder.

Table padding 2″x2¼″ for inside of pin-holder.

Tape or soutache braid 18″ long.

Pins (common and fancy), darning cotton (black and white), needles (fine, coarse and darning) and thread (black and white).

Buttons may be of any kind. Our children used a variety of pearl, agate and metal.

In the working drawings illustrating this problem, no dimensions are given. It is thought that the dimensions given in the list of materials, together with those given in the following descriptive matter will furnish all necessary information.

Figure 1, Plate IV, shows how to put boards and art vellum together. Be sure to keep the uncolored faces of the art vellum facing each other when pasting. Allow ¾″ between boards.

Figure 2 illustrates way of putting on cover papers after the A's in Fig. 1 have been folded over the B's. The lined spaces represent the art vellum with A's pasted over B's. Before the cover papers are pasted the needle-holder should be made and ready to attach to the long piece of cover paper in the middle in the way Fig. 3 illustrates. The ends of the needle-holder are folded under A, Fig. 2, after it is folded down ready to paste.

To make the needle-holder, bind pieces of cotton flannel with strips of art vellum, folded the long way down the middle.

Figure 2 also illustrates mitering of corners of the cover paper.

Figures 4 and 5 show the making of the darning cotton and thread winders.

To make the pin-holder illustrated in Fig. 6, paste piece of table padding 2″x2¼″ between two pieces of jute board 2″x2¼″. Bind the edges with art vellum and paste a piece of cover paper 1¾″x2″ on one side of holder. The other side is pasted to the portfolio.

The reproduced photograph will show where darning cotton and thread winders, and the pin-holder, are to be pasted into the portfolio.

Figure 7 shows how to pass tape thru hinges of the portfolio. The tape should be passed thru both hinges as illustrated. Figure 8 shows how to fold and tie when completed.

The paper used for this portfolio was a figured silver lining paper. A medium toned gray-blue art vellum, and soutache braid to match, were used with the paper and a very pleasing color effect was the result.

Handkerchief Boxes.

In the first four problems described here, the attractiveness was found in the combinations of color in the materials used. In the handkerchief boxes, however, the designs are to be worked out and applied by the children; and it is to this fact that this gift owes its value in the mental development of the people who are to make them.

The foundation box may be found in most five-and-ten-cent stores. Very often these are in burnt wood effects. The covers are fastened to the box with light brass hinges which may be removed as they are not needed after the box is covered.

A plain natural colored crash may be used for covering. This material permits of easy application of color.

The photograph here reproduced shows the kinds of decorations used: viz., stick printing, stencilling and simple needle work.

In those designs applied with the needle, the simple running stitch was used in one, and the spots outlined with the regular outline stitch. The other design is on the order of stick printing but the squares and rectangles are crossed vertically and horizontally with a darning stitch.

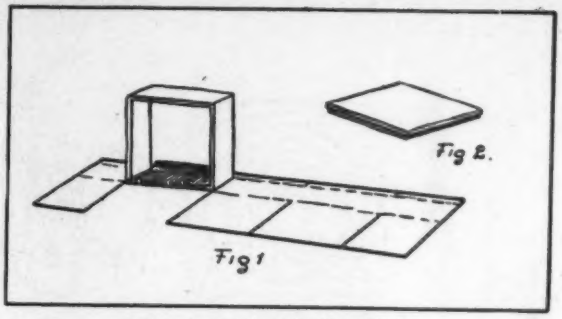


Plate V. Details of Handkerchief Box.

Plate V shows drawings relative to the making of this problem. Figure 1 shows how to cover box. Figure 2 shows cover for box. A piece of cloth board No. 30 which has been covered, on face and edges with tinted paper, is pasted to under side of cover. This cloth board fits down into the box and prevents the cover slipping from one side to the other.

Notice the way in which the crash is turned into box and on to the bottom. The bottom should be covered with a piece of tinted paper to hide rough edges of crash.

JEWELRY DESIGNS FOR CHRISTMAS GIFTS

H. R. Sorensen, Proprietor Orno Shop, DeKalb, Ill.

TO be a really successful jewelry craftsman, one must not only be able to work in metals, but must also learn to read or interpret designs. From the flat outline on a piece of paper, one must learn to imagine the finished article with its depth, and lights and shades; gained only by the finishing touches which are rarely, if ever, shown in the design.

Each individual will have to work out for himself, these finishing touches, and only a great deal of practice will make this part of the work satisfactory.

One reason amateur work looks so crude is that the beginner cannot at once learn to handle the gravers' tools with which a line might be carved or an edge beveled, thus taking away the flat, dead appearance of the article. It is in these final touches that so much individuality may be shown.

The accompanying designs are very much like those received by the craftsman from the drawing he has worked out for him. If two men were given the same design the possibilities are that the finished articles would differ to a great extent.

Each design requires considerable study before actual work is begun. Experience will teach the artist in metals to make the finished piece of jewelry as different from the crude work of an amateur as the pencil sketch, shaded in all details, is different from the same sketch done in outline only.

The following designs which have been worked out, will now be explained as clearly as possible.

Figures A and B, are similar in construction, the entire design being cut out with the jeweler's saw. In some cases, designs such as these have been misconstrued, parts which should have been cut out having been made from another piece of material and soldered on the ring. Such an execution of the design would result in an unattractive ring.

Figure C is made on the order of A and B, leaving out the side portion indicated by the arrow. This portion is made separately and soldered so as to appear to be coming from under the ring shank on to the side of the bezel. This operation is done after the ring has been shaped and the bezel soldered on. This is the finishing touch that may differ; the portion being soldered higher or lower on the bezel as the individual may think best.

In Figure D, the portion indicated by the arrow is made from another piece of metal and is soldered to the ring shank. The monogram is made, shaped to fit the top of the ring, and carved so as to appear to be interlaced. Then it is soldered to the ring, a little solder having been previously melted on the back of the monogram.

Figures E and F, are similarly constructed, portions indicated by the arrows being soldered on the ring. Portions soldered on in this manner serve to break the height of the bezel, so that a deeper stone may be used than would be suitable for Fig. A or B.

In Figure G, the design was traced on a heavy piece of silver, long enough for the entire ring shank, shaped

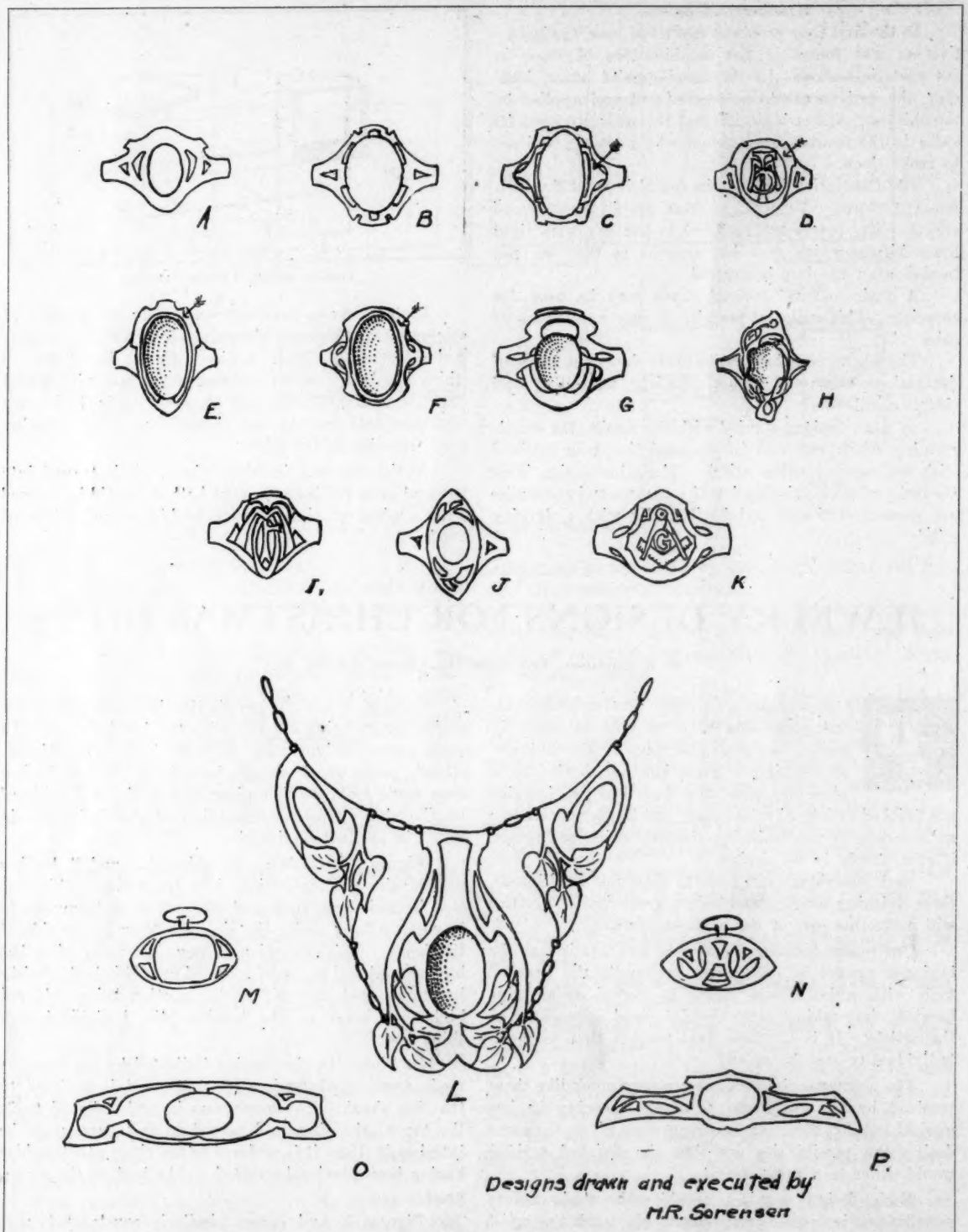
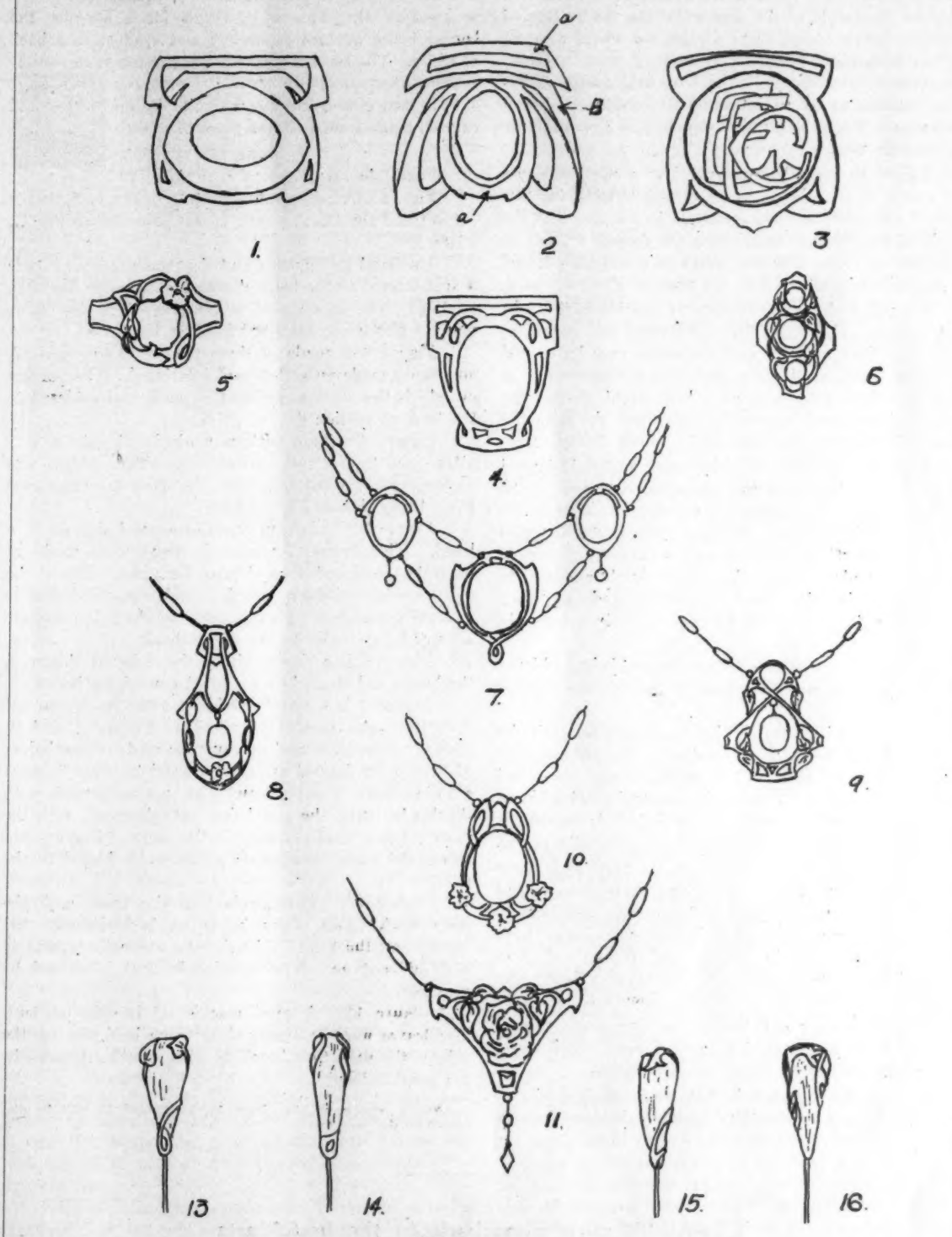


PLATE I. JEWELRY DESIGNS FOR CHRISTMAS GIFTS.



H.R. Sorensen

PLATE II. JEWELRY DESIGNS FOR CHRISTMAS GIFTS.

round, cut out and then carved deeply where the interlaced effect is seen. After this a thin piece of silver was fitted on the inside of the ring following the outline of this first piece, except right at the top where a small portion protrudes.

Such a method of working out this design makes what appears to be an intricate piece of carving and chasing, and makes a ring heavy enough to be a desirable gentleman's ring.

Figure H has a baroque pearl as a set, the leaves and stems of the design being very adaptable for this kind of stone. The bezel conforms to the shape of the pearl, and the leaves and stems are shaped around it. They are cut from separate pieces of metal and shaped as desired, then soldered to the ring.

A great deal of individuality is possible in this sort of a design. The leaves may be shaped and carved so as to look very natural, and the stems may be twined about the bezel much as a real vine would twine. A slightly different position of a leaf might change the general appearance immensely. So must the finishing touches be worked out to the best of one's ability.

Figure I, is made of fairly heavy material, dapped up in the middle where the monogram is traced. The portions around the monogram are cut out, after which the lines of the different letters are carved so as to give the interlaced effect. When a part is supposed to look as tho it went under another, the worker should endeavor to carve this under piece so that it slopes gradually down to the line that goes over, so that it really appears to go under.

Figure J, is perforated, no extra part being soldered on, as might appear. The lines at the side are filed or carved.

Figure K, is made similar to Figure G, with the emblem taking the place of the stone. The emblem with the exception of the "G" is made of one piece and carved. The letter "G" is made separately and soldered in the square and compass. Then the whole emblem is soldered to the part of the ring which is really a lining.

Figure L. In this lavaliere the edge and leaves were made of one piece. After they were cut out and filed, the leaves were dapped on the reverse side so as to render them graceful. The border and leaves were entirely finished as to sawing and filing, and then soldered to the silver plate which acted as a base. The bezel for the stone was, of course, soldered to this base.

Figure M, is a cuff button, the design cut from a piece of metal and applied to another piece which serves as a back.

Figure N, is a cuff button made of fairly heavy material dapped up considerably on the back so that the center of the button is quite high. The design is cut out and carved so as to give the effect of interlacing.

Figure O. This is a design for a bar-pin, the border being cut out separately and applied to a back of silver. The bezel is soldered to the back as in similar articles mentioned.

Figure P is a bar pin with the design pierced and carved, made from just one piece of silver.

Plate II.

Four fobs are shown in this plate.

Figs. 1 and 3 are made with the edges raised, that is cut out and applied to a back as was described in Fig. O, Plate I.

The bezel in Figure 1 and the monogram in Figure 3 are soldered to the back plates after the edge has been applied. The monogram is constructed in the same manner as the one described for Fig. D, Plate I.

Figure 2 is made of three pieces. Two pieces, A and B are made separately and interlaced. The portion on which the bezel is soldered is made and soldered to the back of portion A.

Figure 4. This pattern worked out into a very attractive, tho simple, silver fob. The design was pierced, that is cut out with the saw, the interlaced effect being obtained by carving.

Figure 5. This ring contains a pearl slug set in a bezel. The flower, leaves and stems were made of separate pieces and applied piece for piece. Bits of the stems are carried down onto the shank, then filed so as to gradually disappear, giving, when finished, the appearance of being really a part of the shank.

Figure 6 is a ring made on the order of Figure 5, the leaves and stems being applied around the bezels.

Figure 7 is a simple necklace with the design cut thru the metal as was described in Figures A and B, Plate I. The balls used as drops are made of two halves of thin silver dapped up, and soldered together to form a hollow ball. Figures 8 and 9 are pendants made with the border only, the rest being entirely open, with the stone set in a bezel swinging in the center. Flowers and leaves are made in separate pieces and soldered to the rim.

Figure 10. This pendant is also made with the open work effect, there being no back between the border and the bezel. The flowers are made separately and soldered on. The interlaced effect is gained by carving.

Figure 11. A coral rose is set in this pendant. The leaves were so arranged as to go half way up the side of the rose, thus breaking what would otherwise be too great a height.

NOTE—The scarf pins, Figs. 13, 14, 15 and 16, will be discussed in the next article.

BEAUTY must come back to the useful arts, and the distinction between the fine and the useful arts be forgotten.—*R. W. Emerson.*

COSTUME DESIGN AND ILLUSTRATION

Ethel H. Traphagen

Forms.

THE general foundation of costume sketching is the human form and the simplest way of representing a human form for this purpose is by drawing two ovals. First make a horizontal, straight line for the shoulders, then swing an oval, somewhat foreshortened, from the shoulder line, to represent the waist. Next swing another more elongated oval from near the ending points of the first oval (having the furthest part out always opposite the farthest point out of the other oval) to represent the skirt. Connect these and you have the form. (See illustration number 1.) The bust and hip should be on a vertical line and for the present day silhouette the connecting lines should be but slightly curved. Next extend the two lines for the sleeves; add the collar and put in the center line which in the front follows the outside line of the waist and goes straight in the skirt (see illustration number 2). It is interesting to note how the reverse of this forms the back.

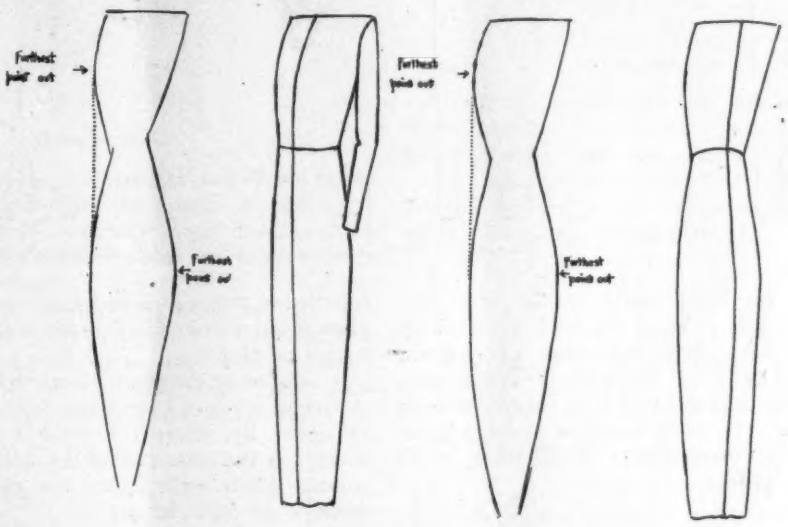


Illustration No. 1.

In making the back connect the ovals in the same manner but note that the center line goes straight in the waist and curves in the skirt. (See illustration number 3.) The waist and the collar lines curve up. The normal waist goes into the skirt about two and a half times and the sleeves bend at the waist line or a little above. The supporting points at shoulders, elbows and hips, should be marked for these points most affect the drapery.

With a little application these forms can soon be mastered and the practice of doing them rapidly and turning them both ways makes for proficiency. (See illustration number 4.) Observe that three-quarter front and back views are used in preference to the straight full front view because it has the advantage of showing the side of the dress as well as the front. An examination of fashion publications will prove how general is this preference.

Summary.

The main points to be remembered are that the bust and hips, for the present silhouette should be on a line; that the arms bend at the waist line or a little above, and that the length of the normal waist goes into the length of the skirt about 2½ times.

In the front view remember that the center line follows the outside line in the waist and goes straight in the skirt; that in the back the center line goes straight in the waist and curves in the skirt. (The center line is the center of the actual figure, not of the sketch.)

The collar and waist lines curve up in the back and down in the front. The bottom of the skirt describes a circle, therefore like the waist and collar the line curves, but always downward.

Short Cuts to Anatomic Effects.

The general shape of the head front view, is like an oval with the greatest width at the top; observe this too in the side, three-quarter and back views of heads. The eyes are in the center of the head and the end of the nose is half-way between the eyebrows and chin. (See illustration number 5.) The eyebrows are on a level with the top of the ear and the lower end of the ear on a level with the nostrils. This forms a never changing axis on which the head turns up and down. Note how the features are located in these changes and how the foreshortening is simplified by means of this

Editor's Note—This is the first of a series of articles on "Costume Design and Illustration." The author is an instructor and lecturer at Cooper Union in the New York Evening School of Industrial Art and in the Brooklyn Teachers' Association Classes. She has been, for some years, on the designing staffs of the Dress Magazine and The Ladies Home Journal. She is the winner of the first prize in the New York Times Competition, 1913.

Illustration No. 2.

Illustration No 3.

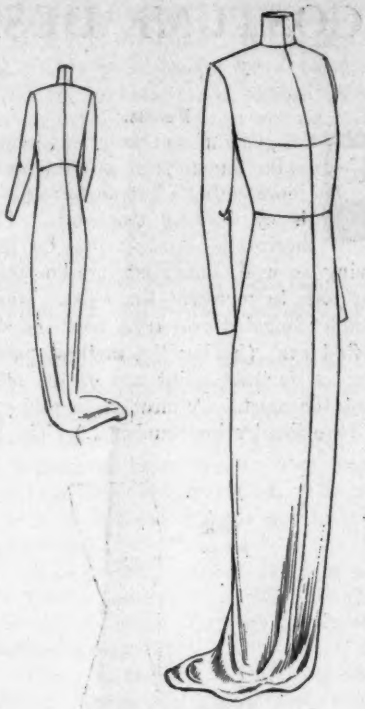


Illustration No. 4.

method. In drawing heads always use the center and other construction lines. When the head is turned up we see more chin and less forehead; when turned down, more forehead and less chin. The eyes are one eye apart, and the lower lip ends at about half the distance between the nose and chin. A triangle is helpful in dividing the face into planes and great care should be taken not to ignore the cheek, jaw and chin bones.

In drawing the nose it is helpful to think of a little round knob, from which extend the nostrils; sketch in the sides and extend a line suggestive of the planes. Afterwards everything can be rubbed out except the nostrils but they will appear more correctly placed than when put in without this foundation thought. (See illustration number 6.)

In drawing the mouth, think first of a Cupid's bow the string of which is broken in the center, then suggest the lower lip, shade the upper lip which is always darkest, as the lower catches the light, and you have the mouth. Never make a hard line around the lips as it destroys the flesh-like quality.

In making the eye always hold the pupil in by the line of the lid. Block in the head, ears, hands and everything before putting in the detail.

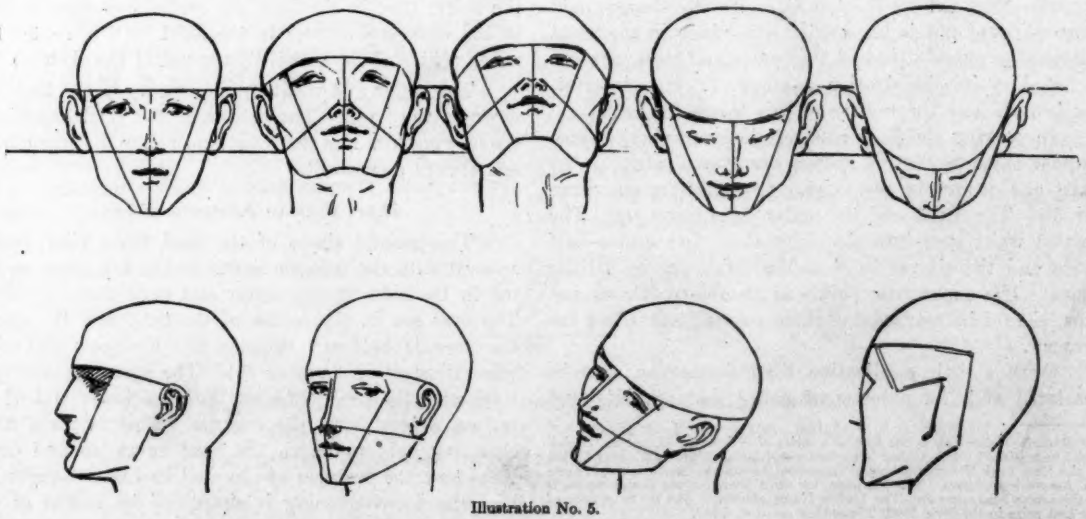


Illustration No. 5.

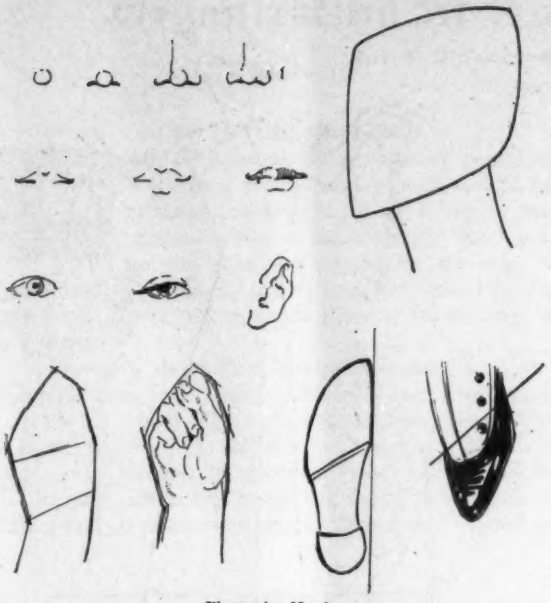


Illustration No. 6.

When doing shoes note that the line of the inside of the foot is straighter than the outside line which has some curve. Notice too how much shorter the line of the inside of the shoe is than the outside line which extends much nearer to the heel.

Hair should be expressed in waves of light and dark, not by single lines; never draw a clean-cut line between the face and forehead, because the hair in many places blends in with the tone of the face. (See illustration number 7, and observe other drawings that show hair.)

Illustration No. 7.
© Vogue, New York.

The human form reduced to its simplest elements gives the following relative proportions: Trunk, thigh and leg are each about one-third the length of body, without the head and neck, tho the trunk is a trifle the longest. The trunk is about twice the length of head and neck. The elbow reaches about to the hip and the hand half down to the thigh.

Walking is best described on paper when both feet are on the ground (tho in reality the greater part of the time the body rests on one foot.) See illustration number 8.

Running is best shown when one foot is on the ground (though in reality much of the time both feet are off the ground). See illustration number 8.

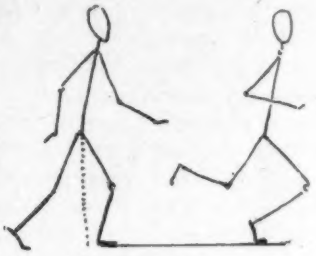


Illustration No. 8.

Leaping is best shown the same as running (limbs ready for next effort) but with feet off the ground as in jumping. See illustration number 9.

Jumping is best shown with feet off the ground but gathered together to preserve poise and ready to alight safely. See illustration number 10.

Illustration No. 9.

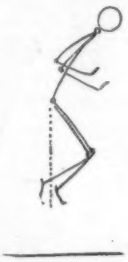


Illustration No. 10.

Illustration No. 11

A stick stands when balanced on one end and also when supported on each side as shown in illustration number 11.

The body may be bent at the hips so as to bring the head over either foot and maintain upright position until the weight of the body is bent beyond the line of support when it must come to the ground as shown in illustration number 12.

Kneeling figures leaning back make it necessary that support be given behind as shown by the vertical dotted line. (See illustration number 13.)

In illustration number 14 is shown a seated figure; the stool is the principal point of support, tho the foot

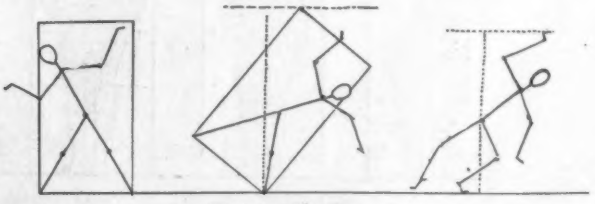


Illustration No 12.

Illustrations No. 15 and 14.

Illustrations No. 16 and 17.

is extended to receive the weight of the body. Illustration number 15 is this construction applied by means of the added ovals. Illustrations 16 and 17 are given as illustrations of the use of the tooth-pick construction in giving action to the ovals—where a body is required and not a mere form.

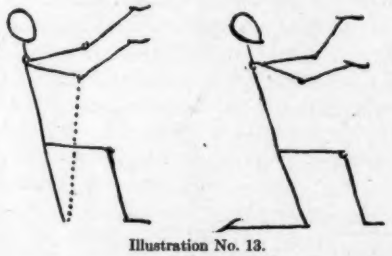


Illustration No. 13.

Children's Proportions.

The chart shown here illustrates the proportions of forms in various stages of development. In infancy the head measures about four times into the height; in the adult eight times. The childrens' heads then, we note are larger in proportion than in the adult. Furthermore the eyes are wider apart, the nose shorter and the lips rather fuller. (See illustration 18.)

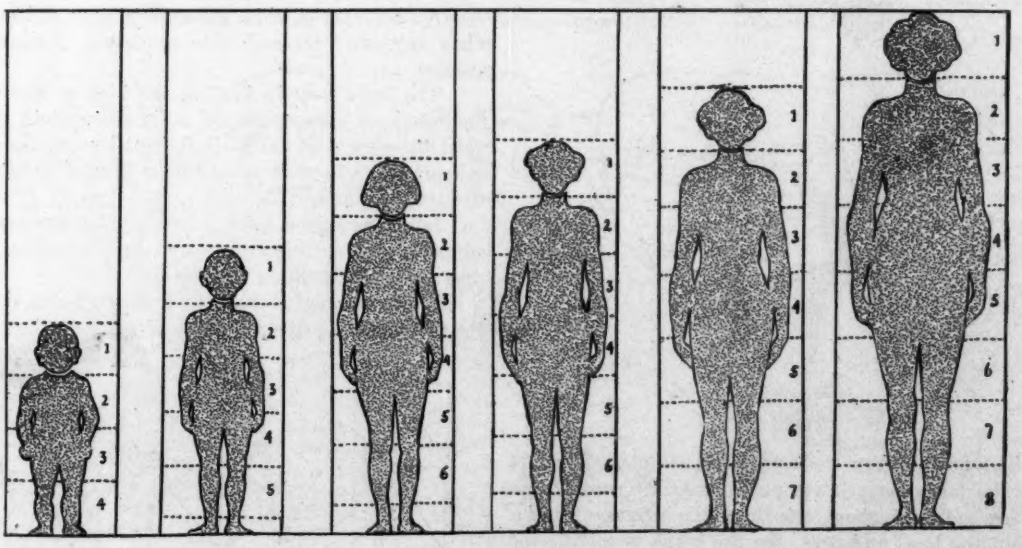


Illustration No. 18.

Organization of Administrative Material

Prof. F. D. Crawshaw, University of Wisconsin

(Fourth Article)

ACCOUNTING SYSTEMS.

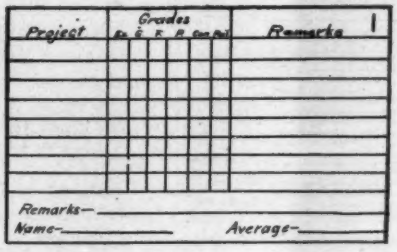
WHATEVER may be the plan of producing work in a manual and industrial arts department, there should be a simple and efficient system of records kept. Much may be said upon this subject but the value of individual recording devices is best determined by inspection. Hence, examples in Figures 16, 17 and 18 are given.

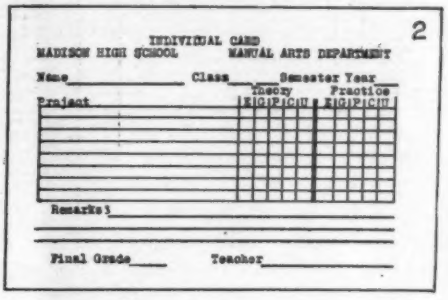
The cards shown here, have been selected with considerable care, from many which have been tried out in practice and from others which have been designed in classes conducted by the writer. These, for the most part, were planned to overcome some possible defects in the cards which the writer had found in use both in school and in commercial shops. It is hoped, therefore, that the selection—from commercial and school-shop cards, and from those designed to meet special needs—may furnish good examples for teachers who wish to adopt some system of accounting daily manual and industrial arts work.

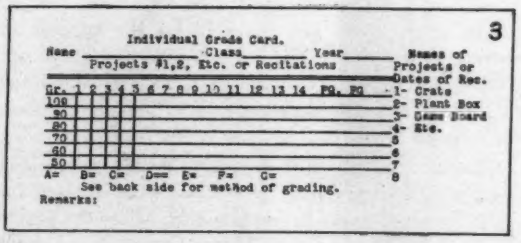
The cards shown by example, may be divided into three classes, viz., individual grade cards, class grade cards, and job and routing cards.

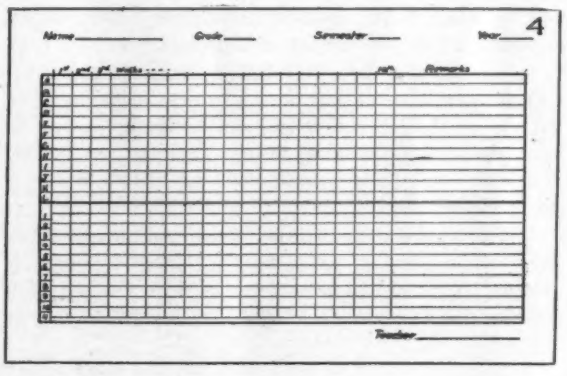
Individual Grade Cards.

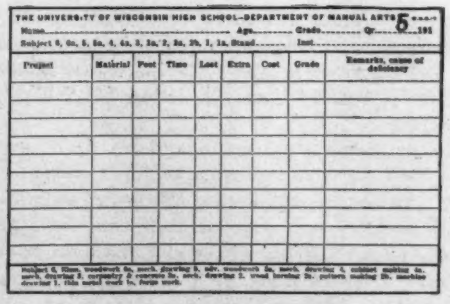
Number 1 represents one of the simplest forms of individual cards. Composite grades only are given for each project or drawing. Marking a square "Ex" for the first project means that the individual is given a rating of excellent for all the elements which entered into his work on this project.

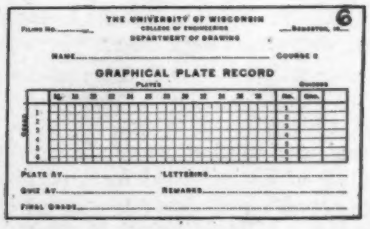






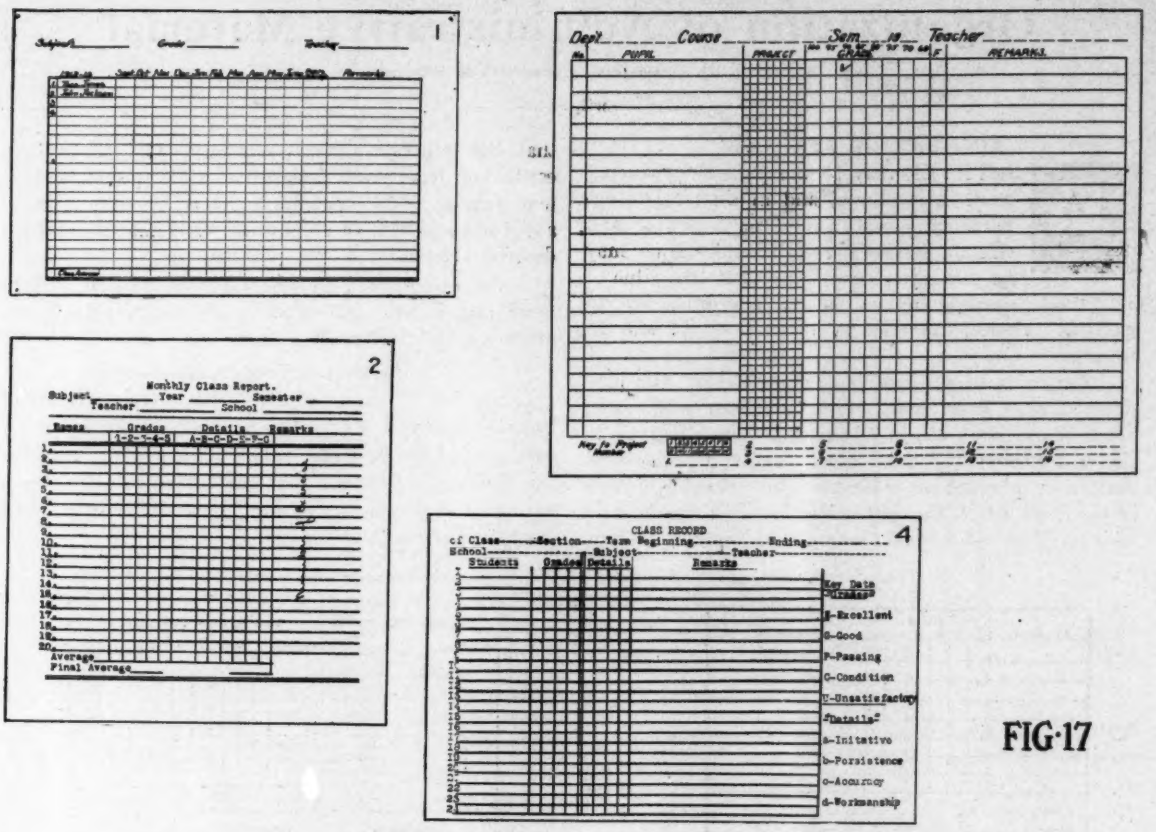






FIG·16

Fig. 16. INDIVIDUAL GRADE CARD-FORMS FOR MANUAL ARTS DEPARTMENTS.



FIG·17

Fig. 17. CLASS RECORDS AND REPORTS.

Number 2 shows a slight modification of the plan of No. 1. Here practice and theory are marked separately for each project or drawing.

Number 3 still further differentiates the marks upon any particular piece of work. In the vertical columns, each piece of work may be given a percentage rating for such elements as practice, theory, drawings, recitations, notebook, etc., each symbol standing for some one of these elements.

The letters at the bottom of the card may stand for such characteristics as initiative, industry, accuracy, neatness, etc., and upon each one of these the individual receives the instructor's estimate for the period of time for which the card is used.

Number 4 will be used in much the same way as will No. 3. Here the characteristics are given in the same column with the grades for actual work done. The letters may be allowed to stand for the elements in the characteristics classification and the figures for those in the other, viz., actual work done.

Number 5 shows a combination grade-and-job card used in the high school, which is operated in connection with the University of Wisconsin. Number 6 is a unique card used to show graphically at any time both the standing of an individual for a particular project, drawing or week's work, and the progress he is making in his course. If it is desired to show, in a similar manner, the record for the different elements entering into the final grade a curve for each element may be plotted, or for each element a different card; or better, a different portion of the same card may be used.

Class Grade Cards.

Class grade cards are desirable for the purpose of comparing at any time, the resultant grades or standings of all members of a class. They may serve as the report of an instructor to his supervisor or to the superintendent of schools.

Number 1 is a simple monthly record card giving grades for each individual in a class, with a place for the instructor's remarks for each month, or for the period of time covered by the card. If these remarks are made each month, symbols could be used and the "remarks" column could be lined vertically to give a column for each month.

Number 2 differentiates between grades given for actual *individual performance* and *individual characteristics*. The figures may stand for individual pieces of work or for periods of time; the letters for "characteristics" details.

Number 3 carries out the idea of No. 2. This card is to be used for composite marks for a month or a semester. In the column headed "project," each of the sixteen squares for each pupil is to be used for a grade upon some element, all of which give the total or summary grade to be recorded by a check in the "grade" column. At the bottom, there is a place to record the

particular elements upon which grades are to be given. Thus, eight may stand for accuracy. Upon this element pupil No. 1 may have a grade of 75. His "grade" column is checked 90, which means that the instructor's estimate of all of the individual's work for the period of time for which the card is used, and after he has averaged all the elements, grades 90. Such a card makes it possible for a supervising officer at any time to know not only what the summary grade is but also what the instructor's estimate was upon each element which helped to make the summary grade.

Number 4 is similar to No. 2, but shows at the right, key data for both grades and details.

Job and Routing Cards.

It is customary in ordinary school practice for instructors to use some plan for grading the work of individuals and reporting upon it to a superior officer. Less often is a plan followed to record the time, cost and routing of a piece of work upon which grades are given. It is believed that when the production-work-plan of departmental management is followed, it is imperative that these items should be carefully recorded. Both as a part of the education of each individual pupil, and as an administrative expediency for the instructor, such a scheme is advisable in both the craftsmanship and the production-work-plans.

Number 1, Fig. 18, shows a card which is used by the Manual Arts Department of the Kokomo, Ind., schools. For simplicity and effectiveness in a department of average size, the card would seem to be satisfactory. It does not account for one calculation on the part of the pupil which, in the judgment of the writer, is desirable, viz., the estimating of the cost of the job; first, as the result of his doing it, and second, as the result of its being done by a mechanic under specific commercial-shop conditions.

Number 2, Fig. 18, provides places for the recording of material used and, in addition, gives a place for the estimated time and cost (items to be recorded by the instructor) and the actual time and cost (calculated by the individual pupil) of the job. By comparing these two sets of data the individual pupil can judge of his efficiency and progress as a workman.

Number 3, Fig. 18, shows a form of card which would be used under special shop conditions approaching those of a commercial production shop. It might be used, therefore, when a department is organized to do specialized production work. It might appropriately be used in a special industrial school such, for example, as a trade school.

Numbers 4 and 5, Fig. 18, show cards which are used under regular public school conditions.

In any accounting system used for ordinary school conditions, where the instructor has little time for clerical work, provision should be made to have as much as possible of this kind of work done by individual pupils in the natural course of their work. The system should be, therefore, as nearly as possible automatic in operation. In any case, it must be simple to be effective. If it is effective, it will save time and effort for the instructor besides giving to all concerned the results of any accounting system, viz., accurate and comparative records both for the completed piece of work, and for each step in the construction taken by operators; and while it is being taken.

Such stock or job cards, as those shown in Nos. 4 and 5, Fig. 18, can be handled to record the attendance of members of a class, as well as to record the necessary data for which there are places on each card.

The instructor may have all individual job cards, in use by the members of a class at any one time, filed in a cabinet in which there are vertical pockets. In

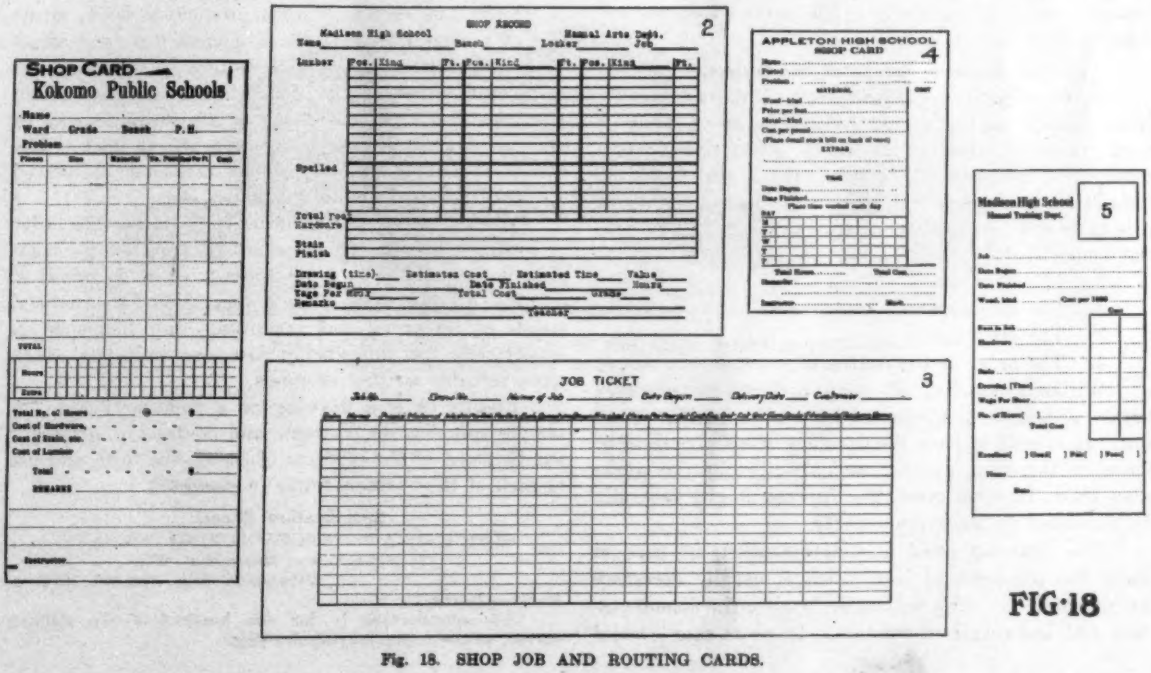


Fig. 18. SHOP JOB AND ROUTING CARDS.

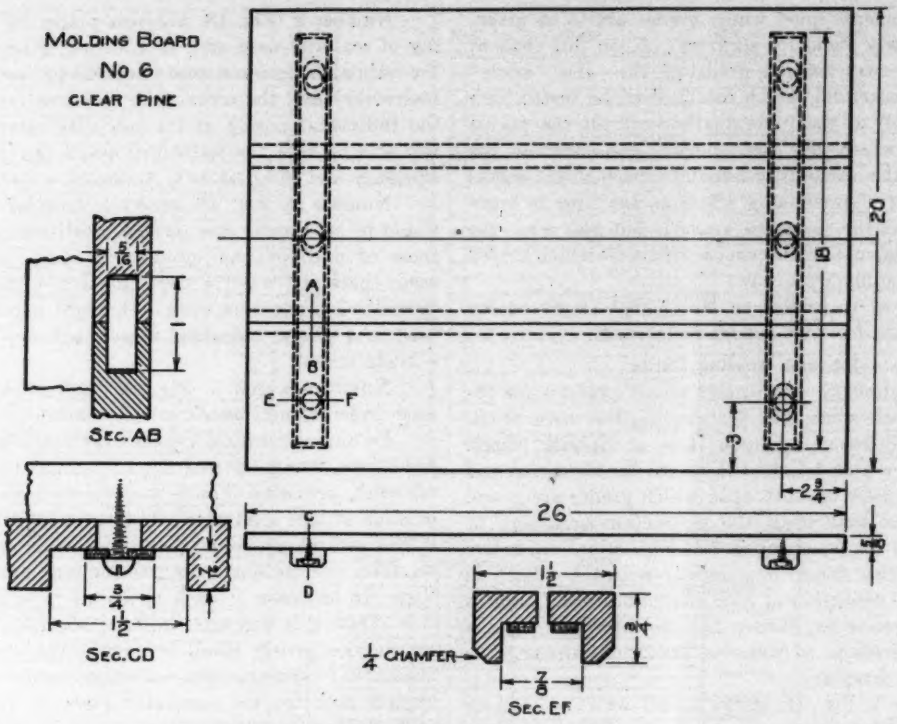


Fig. 19. DETAILS OF MOLDING BOARD.

each pocket there will be two divisions. All pockets for one class will be in a single tier or row. At the beginning of a period, all cards used by a class will be in corresponding divisions, in pockets assigned to individuals in the class. During the period, while the class is at work, it shall be the duty of each member to change his card to the vacant division of his pocket in the case. This may take the place of "punching the clock" in a factory time-recording system. The cards which are not changed record absences.

Specifications, Estimates and Orders.

In connection with that part of the accounting system which has to do with the jobbing and routing of work, valuable information can be given classes upon commercial methods of carrying thru a job, from the time of its conception in the mind of the one for whom it is to be done, to the time of its completion. This process consists of four steps:

1. The drawing.
2. The specification.
3. The estimate.
4. The order or the contract.

Without question, all shop projects of whatever nature should be accompanied by a workmanlike drawing. It is well to have the drawing of an article to be made in the shop, planned and executed by the workman altho, in some cases, the drawing might naturally be furnished by some other party.

The drawing itself is a specification, in part at least, but some verbal instruction is usually necessary to interpret it. This ordinarily is given in demonstration and individual instruction. In some cases, would it not be well to have such necessary information given in the form of written instructions? At times this might be furnished by the instructor, but to familiarize pupils with the requirements of specifications, and to give them practice in writing them, they might be required to prepare them for pieces of work for which they were to be responsible. Such practice would serve as a quiz of the most vital kind.

Then, too, especially upon production work, members of a class will learn to economize time and effort in their operations, and plan definitely for it if they will estimate the cost of the work they are to do. Such estimates should be made out in a systematic way in connection with the compiling of a bill of stock. The result can, when checked by the instructor, be placed upon the job card in the designated place.

The fourth step mentioned, viz., writing the order or contract, might well be taken to carry out the complete process and to fix the contract form in the minds of pupils. All this work offers a suggestion for a natural means of reviewing and examining, and furnishes an opportunity for introducing into our industrial work some valuable written exercises.

Figure 19 is a drawing of a molding board. A sample specification, estimate and contract is given for one hundred of the same, to illustrate the form and use of each of the business forms in classwork.

Specification Sheet.

OFFICE OF A-B MANUFACTURING COMPANY,
724 Fifth Street, Milwaukee, Wis.
Milwaukee, Wis., Jan. 30, 1913.

Molding Board No. 6.

This specification is for one hundred (100) molding boards, as per accompanying drawing.

Each board is to be made from kiln dried clear-white pine, free from knots and shakes. Each board is to be made in three pieces, all glued together edgewise with the best grade of hot glue, and clamped to dry for at least ten hours.

Each glue joint is to be made with a sliding tongue, running the full length of the joint. Each joint is to be washed with glue at the time of gluing the joints. The three pieces are to be clamped at one time.

The stock for tongue is to be the same as that used for the boards. Each tongue must be one inch wide and three-eighths of an inch thick. The groove for the tongue must be centrally located, with reference to thickness of boards, and of a size to just permit tongues to slide before gluing.

Each complete board, after being taken from the clamps, must be dressed on all sides and sanded to the dimensions of the drawing. Each complete board must be backed with two cleats of size, and in location as called for by drawing, and made of same material as the boards.

Each cleat must be fastened with three blue-head screws so located as to come within not less than one inch of any joint, and in a countersunk hole to allow the screw head to come under and clear the back surface of the cleat by one-sixteenth of an inch. The regular screw hole and countersunk holes in the cleats must be double bored, and trimmed, to allow for shrinkage and expansion in the completed board.

All cleats are to be fastened on with No. 9, ¾-inch blue-head screws, run thru a ⅝-inch washer, which must fit directly under the head of the screw, and at the bottom of the double bored and trimmed hole.

All boards are to be made complete and delivered to the undersigned by March 1, 1916.

John Doe, Manager.

The Quotation.

Milwaukee, Wis., Feb. 7, 1913.

Mr. John Doe,
724 Fifth St.,
City.

Dear Sir:—We will furnish you 100 molding boards, as per your drawing and specification marked *Molding Board No. 6* for $77.59.

All goods are to be A No. 1 in material and workmanship. The completed boards are to be delivered on time and in good order. Cash payment is to be made by you within thirty days from date of delivery of goods.

Jones & Smith.
44 Front St., Milwaukee, Wis.

Form of Acceptance.

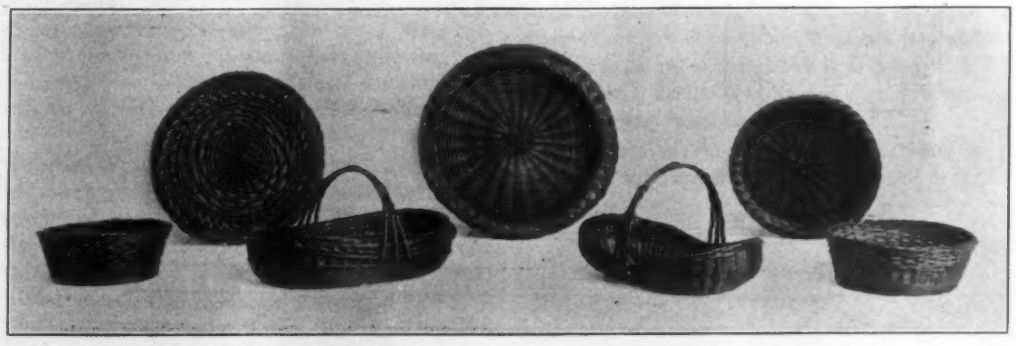
OFFICE OF A-B MANUFACTURING COMPANY,
724 Fifth Street, Milwaukee, Wis.
Milwaukee, Wis., March 1, 1913.

Messrs. Jones & Smith,
44 Front St.,
Milwaukee, Wis.

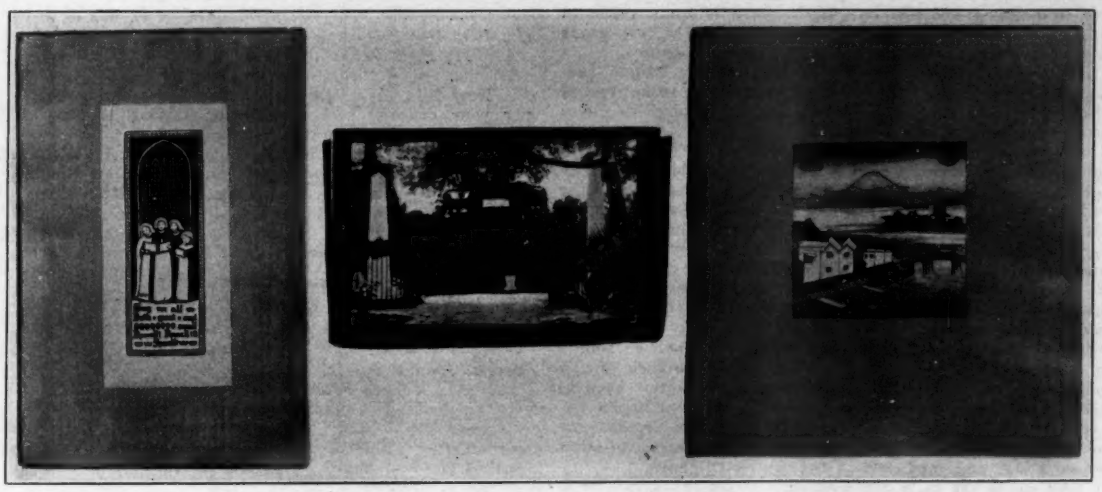
Dear Sirs:—Your estimate for constructing and delivering one hundred (100) molding boards, as per my specification marked *Molding Board No. 6*, is received.

In accordance with the terms of the specification and your estimate, you are hereby given the contract for one hundred (100) complete molding boards. The price named is seventy-seven dollars and fifty-nine cents ($77.59). The limit of cash payment by me, upon delivery of the boards, is thirty (30) days from date of delivery.

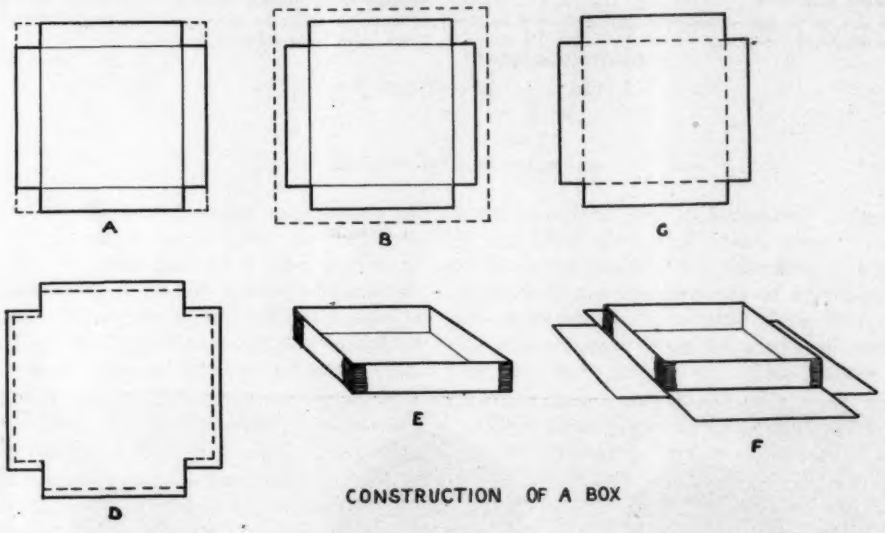
John Doe, Manager.



BASKETS DESIGNED AND MADE BY MISS MARY MILES BLANCHARD,
Master Craftsman, author of the Basketry Book, Bellefonte, Pa.



BOXES FOR GIFT PURPOSES, MADE BY MISS NANCY BEYER.



CONSTRUCTION OF A BOX

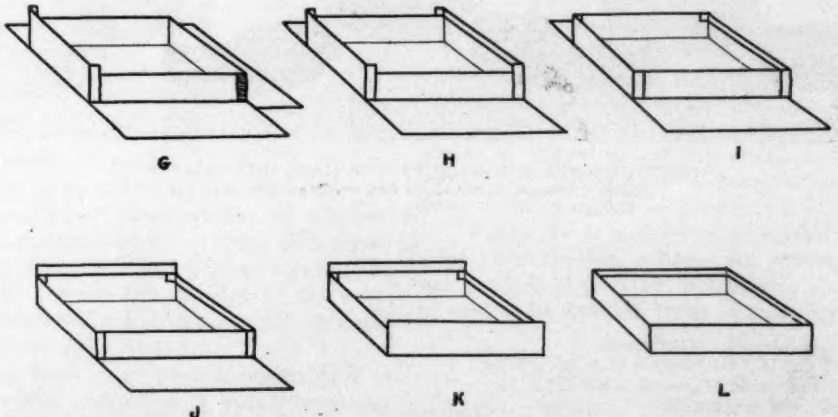


ILLUSTRATION NO. 3. DETAILS OF CONSTRUCTION OF ORDINARY PAPER BOXES.

Box No. 1 Box No. 2. Box No. 4.

BOXES MADE BY THE AUTHOR IN A SCHOOL SHOP.

GIFT BOXES

Nancy Beyer

READY-made boxes covered with fancy papers in designs of holly, mistletoe and poinsettia, tho appropriate, are usually not artistic.

The object of this article is to present ways and means by which unattractive boxes can be made appropriate and artistic as gift boxes; also how to construct a box for necessities' sake.

Simple white boxes, or plain colored boxes, can be covered with attractive papers by pasting a cover of Japanese wood veneer or a paper of good quality over the box sides, top and bottom—allowing the original cover to show about one-eighth of an inch on all edges. A pretty contrast in illustration No. 1—a blue box, covered with cream-colored wood veneer, allowing the narrow edges of blue to show on all sides—finishing the cover with an attractive Christmas card in cream, blue and black.

Illustration No. 2 is a hand-made box. The twelve steps involved in making are shown in illustration No. 3. (a) Outside of box, cardboard marked for cutting. (b) Outside of box, cardboard cut and lined ready for trimming. (c) Outside of box, lining trimmed away, box scored on dotted line ready for turning sides. (d) Plan for outside cover paper, dotted line showing the relation of paper to box. (e) Sides of box turned and reinforced on the corners with pieces of thin cloth which hold the corners firmly in place. (f) First step in pasting cover paper to box. The paste is put on the box, the box placed to the cover paper and the paper smoothed with a folder protecting the cover paper with a piece of scrap paper while smoothing. (g) Second step in pasting cover paper to box. (h) Third step. (i) Fourth step. (j) Fifth step. (k) Sixth step. (l) Seventh step. This illustration shows only the making of one-half of a box; the top of the lid is one-sixteenth of an inch larger on all four sides than the bottom part, which permits the lid to fit comfortably over the other half of the box when finished. The construction board used for illustration No. 3 is blue tint-board; the cover paper is gray Japanese, the lining is lavender Japanese paper, and the top cover is finished with a Japanese print pasted in the center.

Illustration No. 4 is a folding postcard box. A postal card is pasted on the outside cover. The same method of construction is used as in illustration No. 4; the pocket into which the flap is fitted, is lined when the box is lined by pasting a piece of cover paper to the front surface of the cardboard side marked (x). The cover paper, on the same side, is not pasted to the box as are all the other sides, but it is lined with a piece of cloth a little larger than the side, which makes it sufficiently strong for constant use.

Illustration No. 5—Postcard box, shows the plan for cardboard and the dotted line for cover paper.

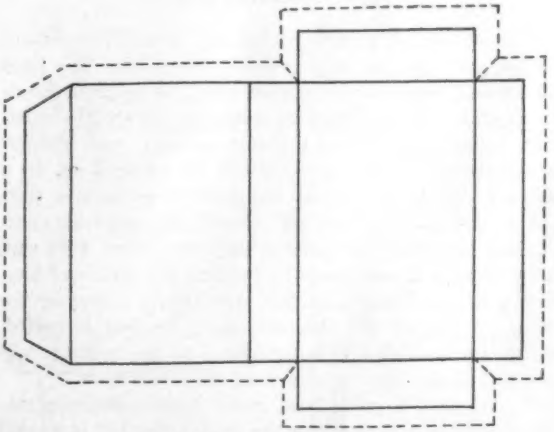


Illustration No. 5. Details of Post Card Box.

ART SMITHING

Thomas Googerty, Pontiac, Ill.

(Fifth Article)

Exercise No. 9.

FIGURE 47 represents a hat-and-coat hook. In the making of this piece, the plate should be made from soft steel. The dimensions are shown in Fig. 48. The shape of the plate can be drawn on heavy paper, which is afterward cut out and used as a pattern when making the plate from metal. After the plate is cut out with a cold chisel, it is ground or filed on the edges. The holes are next drilled on the lines cut on the surface as shown in the drawing of the leaf. In cutting

Fig. 47. Hat and Coat Hook.

the lines, a short, narrow cold chisel is used for chasing in the same manner as previously described. The lines on the leaf should be made quite deep. A *fuller* is shown in Fig. 48, which is used to make the lines still deeper. The fuller should have the edge smooth, and without sharp corners. The plate should be clamped on to a surface plate while making the lines. The fuller is then set on the cut lines and struck with the hand hammer, chasing the tool to the ends of the lines. This work can, also, be done to advantage by heating the plate and having a helper hold it on the anvil while fullering the lines. When all the lines are made, the leaf is heated, set on the elm block and hammered on the back to raise the end of the lobes as shown in the illustration.

The hook is made from iron. Figure 49 represents the dimensions of stock for the hook. The lug is welded on, and the ends of the bar are rounded ready to be formed. After the stock is cut, it is set six inches from one end to enlarge it so that the lug can be welded on. The stock from which the lug is made is cut 3½ inches

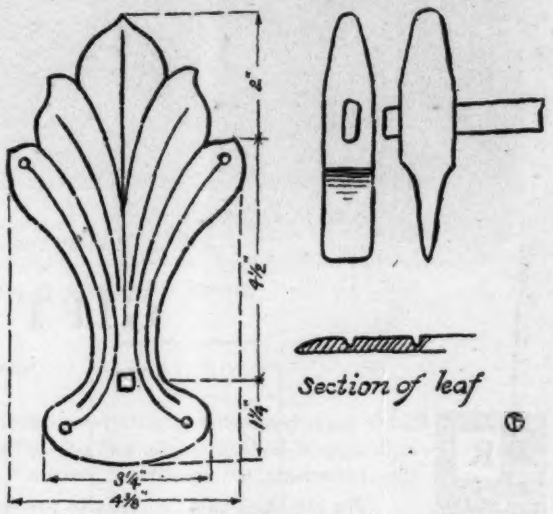


Fig. 48.

long, upset on end, and split in the vise ½ inch deep as shown at Figure 50. The split end should be formed

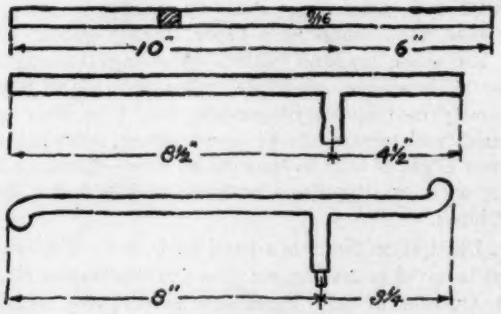


Fig. 49.

as shown. In welding, separate heats are taken and the lug is jumped on to the bar as shown in Figure 51. The

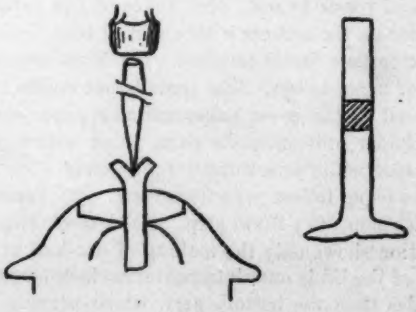


Fig. 50.

first blows are struck directly on the end of the lug, then the lips are welded. Figure 49 shows the length of the piece before the knobs are formed. In making the knobs at the end, they should be upset as shown in Figure 52.

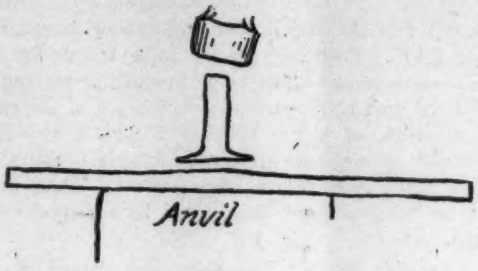


Fig. 51.

They are then hammered as shown, and finally rounded. The lug is next cut the proper length, and a shoulder filed at the end. The chased lines are now cut on the front side. In forming the piece, it is heated and ham-

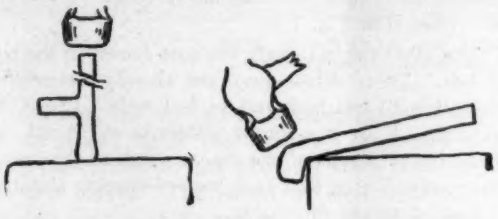


Fig. 52.

mered over the horn of the anvil, starting to bend at the end first, and working toward the center. In bending anything of this kind, always start at one end, and

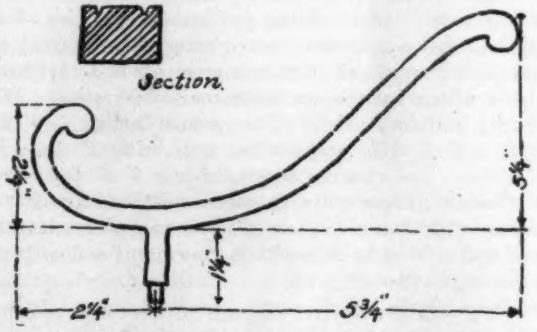


Fig. 53.

finish as you work toward the other end. See the drawing of bent hook at Figure 53. The end of the lug is next heated and caught in a vise, the plate set on and riveted tightly. The work is smoothed with a file, heated to darken it, and oiled.

Exercise No. 10.

A wall hook, suitable to hang a bird cage or fern dish, is shown at Figure 54. At Figure 55 is shown the length and size of stock, and the piece ready to form. In making the ball, the piece is shouldered at one end

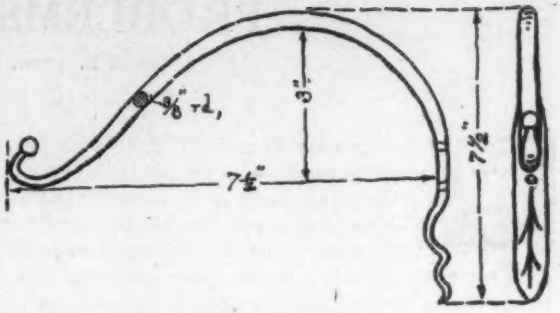


Fig. 54. Wall Hook.

by hammering it on the outer edge of the anvil as shown in Figure 56. It is then hammered on the corner, to make it round. The other end is drawn to a square point, and then flattened as shown in Figure 57, letting it become as wide as it will. This flat end is then veined

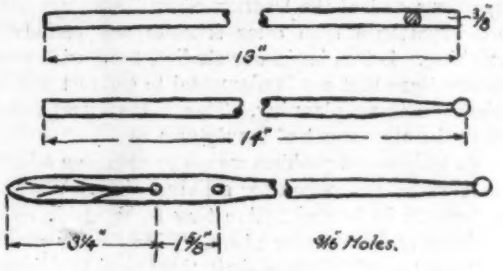


Fig. 55.

suggesting a leaf form. In doing this, a long chisel, made rounded somewhat like a fuller, is used. The piece is heated and a sunken line made with the chisel as shown by the drawing of the leaf end. The piece is then heated and the leaf end formed. The holes should now be drilled. The balance of the hook is heated and formed by hammering it over the horn of the anvil.

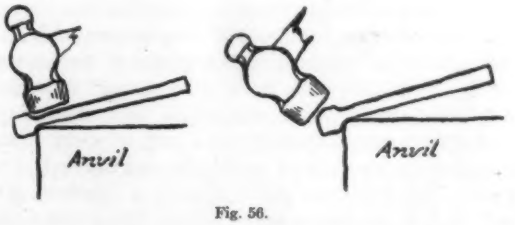


Fig. 56.

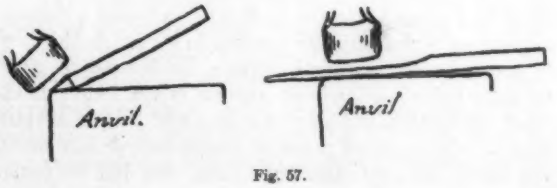


Fig. 57.

PROBLEMS IN DESIGN

Bonnie E. Snow, Millburn, New Jersey

Lesson XI.

THE Planning of a Room Interior. There are few people who do not, at some time in their lives, assist in the planning and furnishing of a home. Fortunate, indeed, are those who, possessing the requisite knowledge for meeting such a problem, are given the opportunity to put theories into practice. While comparatively few can do this in actuality—for most of us live in houses that other people have planned—still it is a good thing for all to do this on paper, planning a house or a room in miniature, and deciding every question that can possibly arise regarding its size, proportion, arrangement of wall spaces and disposition of furniture. Each room thus becomes a problem in design. Interior arrangements are not confined to considerations of draperies and wall coverings. The questions of room proportions and of the location of wall openings are of more importance than color schemes or "periods" in furnishing. Let us begin our studies, then, with simple considerations that are fundamental to comfort and convenience in house planning. This is the surest foundation to the attainment of beauty as a result.

In our present problem we are to choose an adequate and beautiful proportion for a living room. Where are the doors to be located? Are they to be inside or outside doors, and how many of each? How many windows are there to be? Where shall these wall openings be placed so that there shall be sufficient room for the necessary furniture? Shall bookcases and window-seats be built-in, or cabinet made? Shall the "trim" of the room be wood in its natural finish, or shall we resort to paint? Are the walls to be rough plastered, smooth finish, wood paneled or papered? These are points which may be discussed in the lessons that we classify under the head of Interior Decoration, and their thoughtful consideration cannot fail to interest high-school students. These questions immediately relate to home life, and they forecast the problems that will surely confront the householder and the home-maker of the future.

To plan and draw three walls and the floor space of a miniature room, to decide the questions above suggested, and finally to give the result of semblance of reality by folding the walls into proper relationship with the floor and with each other, may well occupy a class of high-school students for a half semester or more, according to the daily or weekly lessons allotted to such work. The full description of such a problem, giving each step in its development, will be the clearest means of showing one way of solving it.

The Floor Plan. A sheet of squared paper, 18″x23″ ruled twelve spaces to the inch, will be found a convenient means of drawing our problem to scale. As this is to be a living room, we shall increase the dimensions given on page 159 of the October number of the INDUSTRIAL-ARTS MAGAZINE, and assume a length of 18′ and a width of 14′. Our squared paper is thumb-tacked to a drawing board, the long edges horizontal. We find the center from left to right and lay off and rule with pencil an oblong 9″x7″. Each inch on our paper stands for 2′ of actual measurement. The lower line of our rectangle is placed one inch up from the lower margin of the paper. The planning of a rug becomes a matter of adjusting border spaces,—an apparently simple problem, but one requiring the exercise of judgment. These spaces must be balanced, and there must be variety in their widths. (See A in Fig. 1.)

The Side Walls. The floor plan determines two dimensions of the side walls. We must assume the height, which in this case is a slight increase over the average height given in the table of dimensions already referred to. A room ten feet high will permit us to use a decorative frieze for which we will allow 18″. We now draw the rectangle for the end wall of our room, immediately above and adjoining the rectangle for the floor plan. (See B in Fig. 1.)

The other two side walls are now drawn on the right and left. Their dimensions are already determined; each wall is 10 feet high and 14 feet wide. (See C and D in Fig. 1.) It is a simple matter to count out these dimensions by means of the spaces ruled on the squared paper, remembering that each inch of spacing stands for two feet of actual dimension.

Breaking the Wall Spaces. We are now ready to consider the breaking of the wall areas into spaces that shall be balanced, and at the same time shall fulfill the requirements of utility. Of course our living room is to have a fireplace. We select the middle of the largest wall space as the most suitable location for this "heart" of our room. Ideas of the proportions and size of a fireplace and mantle have been gleaned from magazines and photographs, and from measurements of actual fireplaces which have come under our observation. We decide, in this problem to use a mantle that is 4′ 2″ high, is 6′ 4″ wide, and, in this case, being of stone, is 4″ thick. The opening for the fire is 2′ 6″ high and 3′ 8″ wide. The mantle, chimney-breast and fire-chamber are thus drawn to scale in the center of our largest wall space. The brick hearth is drawn on the floor plan adjoining. (See Fig. 1.)

To obtain a correct balance in our arrangement, and to provide the door and window that our wall space demands, we plan a doorway on the right of our fireplace and a window and built-in bookcase on the left. The doorway presents another interesting problem in the arrangement of spaces. It is first planned as a simple rectangle 3′ 6″ wide and 7′ 10″ high. Our living room must be bright and cheerful, with sunlight and air in abundance. We, therefore, introduce glass into our door panelling, and carefully estimate the proportions and sizes of the panes, and of the carved panels below the glass. Our door must be in itself a balanced unit before it is ready to subordinate itself to the side wall as a whole.

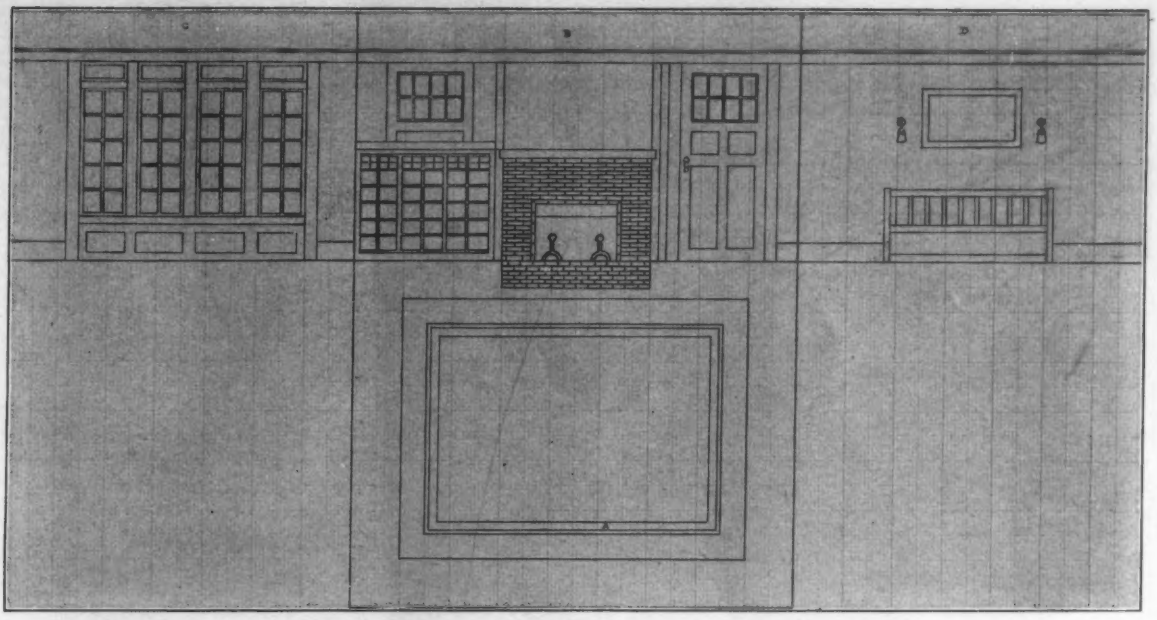


Fig. 1. FLOOR PLAN AND THREE WALL PLANS FOR ROOM INTERIOR.
Drawn on Squared Paper—Twelve Divisions to the Inch.

The space on the left of the fireplace is filled by a bookcase placed under the window. The width of the case is determined by the available space between fireplace and corner. The height we assume to be on a level with the top of the mantel. Three glass doors are planned for the front of the case. These serve the purposes of utility, in protecting the books while exposing them to view, and the purposes of beauty, by providing an opportunity for us to repeat the feature of small panes of glass, used in the door and windows of our room, thus sustaining an effect of unity. The window above the bookcase is planned to balance the window in the door. A space over the mantel is left for the touch of color our room needs, in the shape of a decorative picture. Certain accessories, such as a pair of tall candlesticks or a clock can be placed upon the mantel. The top of the bookcase could support a fern, or a piece of pottery, or a brass or copper tray.

The Left Wall. The custom of grouping windows is of Japanese origin and has a distinct decorative value, as attractive in its way as the placing of the fireplace and the hearth. Every one feels the attraction of a group of sunny windows. Contrast this effect (see C in Fig. 1) with the commonplace spacing of windows, say two on a side wall, which we find in the "carpenter-planned" house! Under our window group, we naturally desire a built-in seat, with inviting cushions. This feature satisfactorily fills our wall space, and we can proceed to the remaining side wall.

The Right Wall. Space must be planned in the corner for the door to swing against. We have left an unbroken expanse of inside wall. Windows are out of the question here, altho we might use a door, if desired. Here is space for a large piece of furniture, such as a piano, a sofa or another bookcase. We will select a generous sized settee, a picture and two electric or gas fixtures, for the composition of our wall. The measurements for our settee we take from a modification of the dimensions of the chair given in the table of details of dimensions before referred to, or we can measure an actual settee that seems well proportioned and suitable for our space. Having decided on the height and width of our settee, it is a simple matter to count the necessary squares to express these dimensions, and sketch in the outlines.

Transferring and Inking-in the Drawing. The arrangement of our room is now complete. The next step is to transfer our sketch to white-mounted water color paper, or monogram board. This can be bought, ready for such use. Tracing paper is placed over the entire drawing and a transcript made. This entails great care and extreme accuracy. Carbon paper is now placed next to the mounted board, and the tracing placed over it. If every line of the tracing is drawn out in full, thru the carbon, a slight smudge will result, which is difficult to remove. It is, therefore, advisable to locate by means of the carbon, all corners, and important points.

By the use of T-square, triangle and ruling pen, these points of location are to be connected. The ink used should be waterproof, as we are to place washes over these lines, in indicating our color scheme; if inking-in is not practicable, a sharp ruled pencil line may be used.

The Color Scheme. The effect of our room and its appeal to the observer will depend largely on the color employed, in expressing more fully what we have done up to this point. A definite knowledge of color is here of greatest assistance. Color knowledge teaches us what combinations we must surely avoid. It teaches us, also, what combinations will surely express harmony. It in-

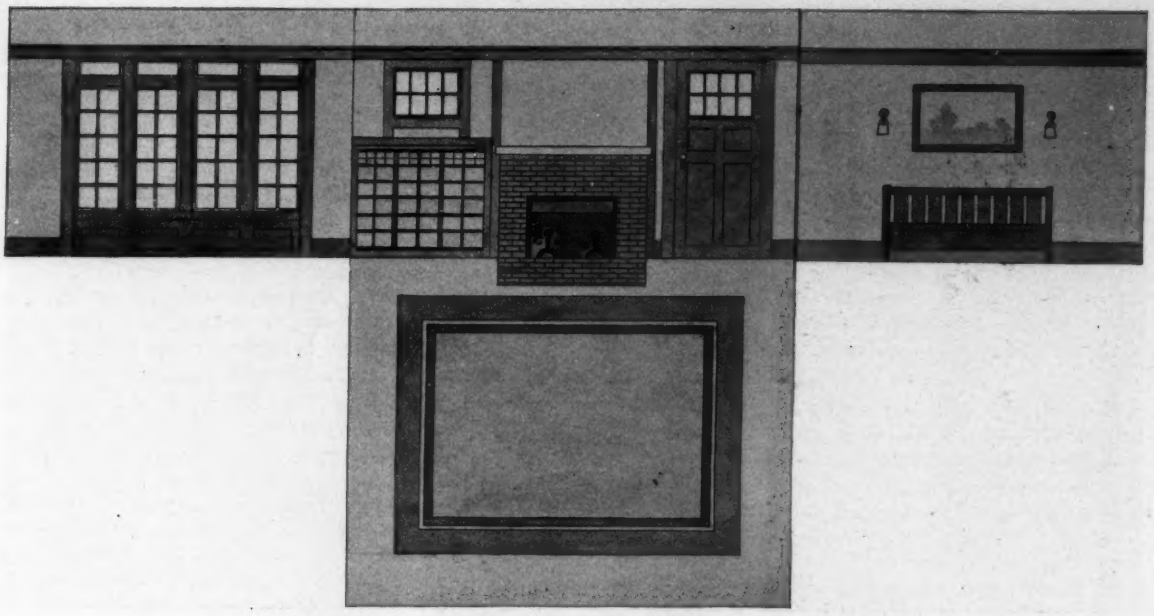


Fig. 2. THE DRAWING TRANSFERRED TO MOUNTED BOARD; COLOR SCHEME EXPRESSED BY MEANS OF WATER COLOR WASHES.

forms us regarding the values and intensities of colors. It directs us as to the proper quantities of bright colors permissible in our room. It guides us in the choice of the proper background colors. Definite color knowledge is like definite grammatical knowledge. It does not hamper the fortunate possessor of native good taste, any more than knowledge of grammatical construction hampers the natural user of good English. In both instances, definite knowledge is a satisfaction; while to the inexperienced or untrained, it acts as a safeguard and a guide. From color knowledge, then, we feel safe in using any one of several schemes. A white trim is always in good taste and may be employed with pale gray-green walls, and a deeper gray-green floor covering. If a warmer scheme is desired, we may choose a chestnut trim, whose natural tones are dark gray-orange. With this, we may use a light-gray orange wall finish, in plaster or paper, and a rug of gray-orange tones, commonly classified as browns. With a scheme of orange tones, we know that the complementary color, blue, will be harmonious in draperies, upholstery, etc.; or, with a chestnut trim, we may carry out an analogous scheme and employ yellow and the brighter tones of orange. In either case, safety lies in the use of pale tints to express our scheme. The difficulty of controlling washes of strong color is too great to be successfully accomplished by high-school students.

The ceiling should always be the lightest tone of the colors used, the walls the next in value, and the floor the darkest of all. In our problem, the lightest tones were washed in first, (working over the inked lines) the middle tones next, and the darkest last. A light wash was applied, somewhat brokenly, over the glass doors of the bookcase, to differentiate the glass here used from the panes in the windows, which were left uncolored. (See Fig. 2.)

Folding the Miniature Room. Up to this point, our work has all been done "in the flat." Our room must now be "set up." Carefully separate the side walls from the end walls by cutting with a sharp knife the ruled lines that denote the corners. In the same way, cut the end wall from the floor plan. Place the separated side walls and floor plan face down, as shown in Fig. 3. The cut edges should meet. Over the joining, glue inch-wide strips of muslin. Small brass rings are to be attached by means of pieces of muslin passed thru the rings and pasted to the cardboard, as shown in Fig. 3. The room may now be folded up, the side walls being held in position against the floor by means of a cord passing thru the rings and under the floor (See Fig. 4).

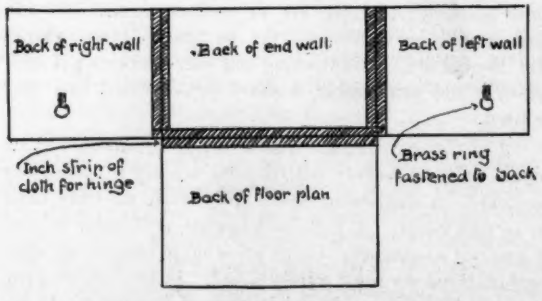

Back of right wall
Back of end wall
Back of left wall
Inch strip of cloth for hinge
Back of floor plan
Brass ring fastened to back

Fig. 3. Diagram Showing Device for Hinging Side Walls.

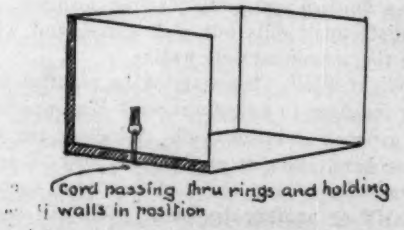


Fig. 4. Diagram Showing Position of Side Walls in Relation to Floor.

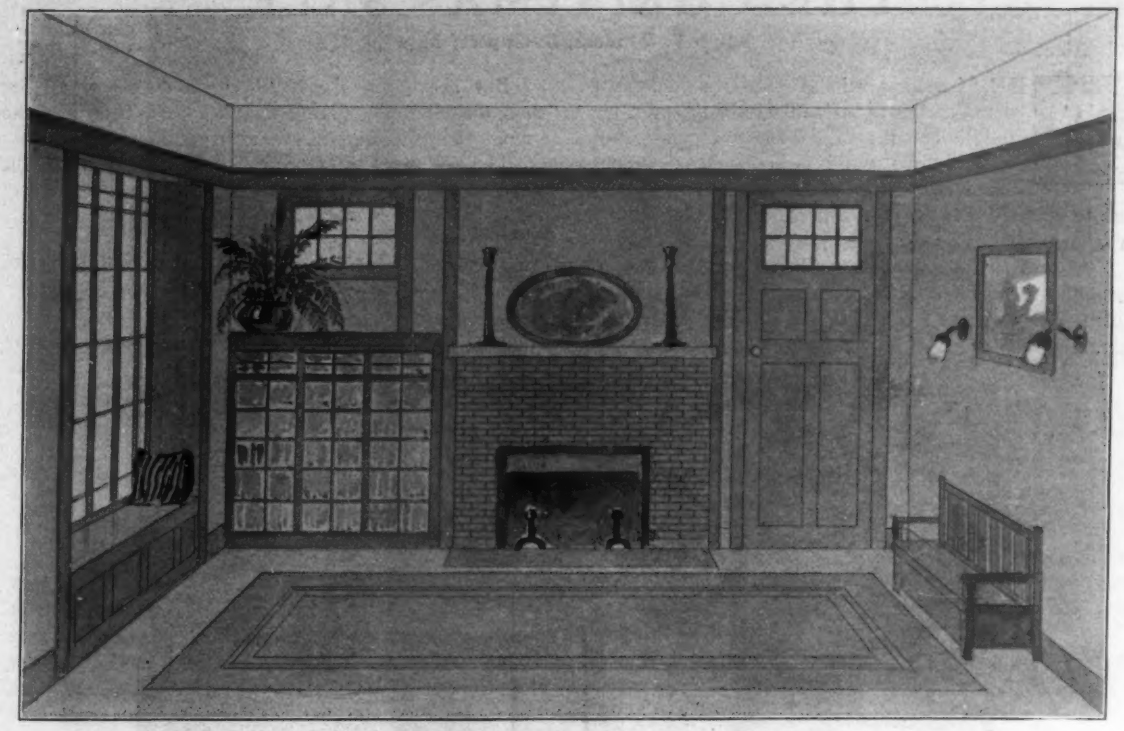


Fig. 5. THE ROOM "SET UP."

By means of this device the results of a class problem of this nature may be individually "set up." The attractiveness of such a showing can easily be imagined. If different color schemes and different accessories of furnishing are used, the individuality of each student will find ample expression.

These collapsible rooms can, of course, be easily reduced to the flat, for preservation in portfolios.

When the rooms are set up, the composition of the ensemble can be completed by the addition of paper furniture made to scale. Fig. 5 shows the result obtained in the particular problem described.

THE true root and basis of all Art lies in the Handicrafts. If there is no room or chance of recognition for really artistic power and feeling in design and craftsmanship—if Art is not recognized in the humblest object and material, and felt to be as valuable in its own way as the more highly rewarded pictorial skill—the arts cannot be in a sound condition; and if artists cease to be found among the crafts there is great danger that they will vanish from the arts also, and become manufacturers and salesmen instead.

Walter Crane.

THE CHRISTMAS SALE

Ralph F. Windoes, Davenport, Iowa

THE Christmas sale of goods made by students in the Industrial Arts Courses of our public schools should be encouraged—especially in the small cities and rural communities. As a means of developing community spirit, and as a means of raising funds, there is no other method that can excel the Christmas sale.

When boys and girls make articles and give them to the school to sell and profit by, it seems to me that the selfish, personal spirit is entirely subdued. When they put their handwork on a commercial basis and see, in dollars and cents, what it is appraised at, they find themselves confronted with exactly the same condition that they will face when they go out into the world to sell their abilities. Two boys making exactly the same article, understanding that the best piece will go first when put on sale, will, thru personal pride, endeavor to do their very best in the making. These are some of the arguments that can be advanced in favor of the sale without taking into consideration the commercial side of the project. On the other hand, if the department needs money for new equipment, and the board cannot furnish it, the sale is one of the surest methods of raising funds. And again, especially in the towns where the work has recently been established, the hard-headed businessmen on the board like to see that their expenditures for this work have not gone to waste, and that the department, in a small way, is self-supporting.

And still there are other arguments in favor of the Christmas sale. Boys and girls are given, early in life, experience in selling their own goods. They are given a chance to know what the great outside world thinks of their ability. When a boy finishes a piece and takes it home, his friends and parents will laud it to the skies, whether it deserves it or not. But the mercenary public will show no discrimination—they are after their money's worth, and the piece must be worth the price asked, regardless of the maker's feelings.

But above all, the children are doing it all for "their own school"—giving hours of their time to make it more efficient—and this is the supreme motive.

The following lists will give an idea of what the sale included:

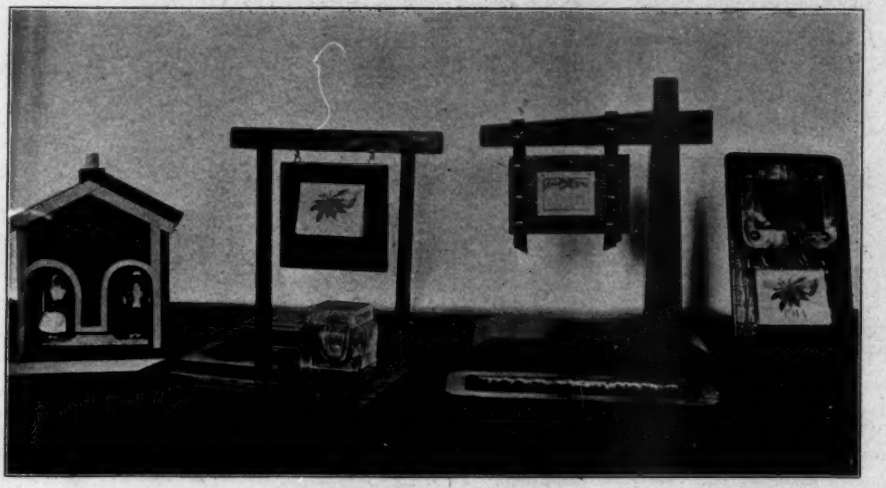
Manual Training List.

Arts and Crafts.

Watch Fobs, Pin Trays, Sconces, Candle-Sticks, Candle Shades, Letter Racks, Etc.

Miscellaneous.

Foot Stools, Taborets, Plant Stands, Sleeve Boards, Calendars, Thermometers, Ink Stands, Waste Baskets, Games, Post Card Racks, Motto Boards, Book Racks, Etc.



ARTICLES OFFERED AT CHRISTMAS SALE.

Domestic Art List.

Handkerchiefs, Towels, Bags of all descriptions, Center Pieces, Doily Rolls, Aprons, Napkin Folders, Pennants, etc.

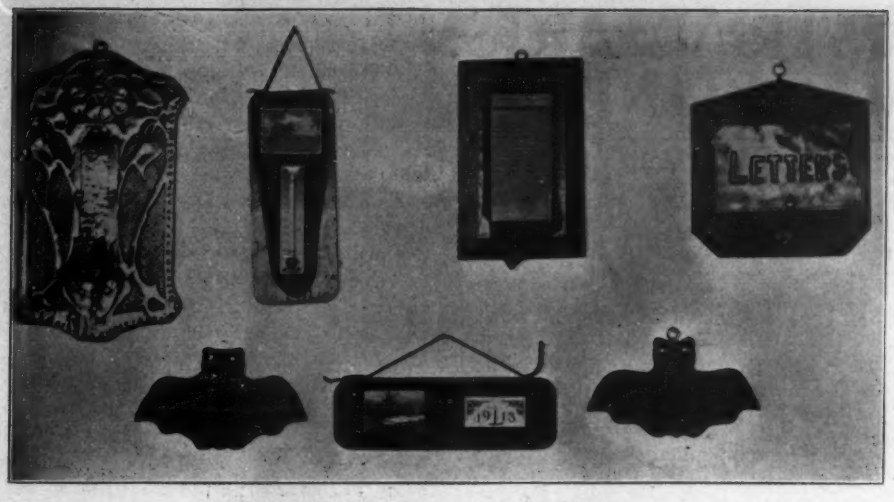
Domestic Science List.

Pies, Cakes, Cookies, and home made candies.

Hand-bills, printed by the boys in the school print-shop, advertising the sale were circulated thruout the city, and, together with the advertising the boys and girls accomplished by talking about it, the "Christmas Sale" was a long-looked-for event.

Before the hour of closing almost the entire stock was sold out, and we had a number of orders for articles that had to be made later and delivered. We took in, altogether, over $75, about $50 of which was clear profit. With the money we purchased a set of lantern slides and some additional type for the print-shop—luxuries that the board knew we could get along without, yet things that we wanted.

As to the method of conducting such a sale: The department took all of the responsibility—if we had fallen behind we would have made it up from our own pockets, as the school board would assume none of it.



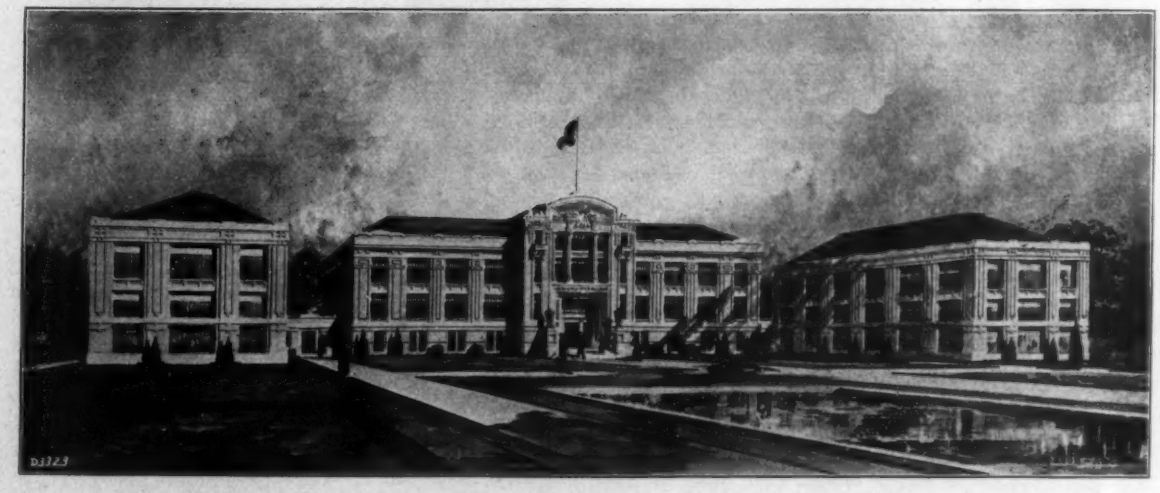
ARTICLES OFFERED AT CHRISTMAS SALE.

Most of the articles were small, none being larger than a foot stool as the accompanying photographs show. Each student in the department, boys and girls alike, was asked to make at least one thing. A strict cost account was kept, and all material was paid for out of the receipts. The Domestic Science articles, candy, cakes, etc., were made by the girls in their own homes and brought down to the store fresh.

The empty store in which the sale was held was donated for the day on condition that we clean it up, so the rent was nothing. We had to pay out a little for gas, heat and light, but our entire expense account was small.

Each article was marked by the teachers with plain figures, and the students clerked in shifts of three—morning, afternoon, and evening. Any piece that was not sold became the property of the student who made it upon paying for the material in it. No pupil's name was put upon any piece, as we wanted the goods to sell on their merit alone, and not because some fond parent did not desire that her boy's be left after the better ones had sold.

The success of this sale, as success comes to any other sale, was in the advertising. Now advertising does not mean spending money for large space in the newspapers—this would eat up all the profits—but it does mean that the people must hear of the sale constantly. The newspapers will be glad to run little articles for you which are a great help—its the kind of local stuff they like. If you have a print-shop, a few circulars will help if properly distributed, but the best source of publicity is the boys and girls themselves. Induce them to talk of the sale constantly to every person with whom they come in contact, let them feel that it's their sale, and that its success depends upon them alone, and success is assured.



PULLMAN FREE SCHOOL OF MANUAL TRAINING, PULLMAN, ILL.
C. Frank Jobson, Architect, Chicago, Ill.

The corner stone for the first units of the George Pullman Free School of Manual Training, to be established with a fund left by the late George M. Pullman, was recently laid. The central building will house the academic classes; the side buildings, the machine shop and the wood shop. Four further buildings are projected.

INDUSTRIAL-ARTS MAGAZINE

Board of Editors

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EDITORIAL

1914 A. D., OR B. C.?

RECENTLY, an educator of national prominence, in discussing the retarded, truant, and generally delinquent boys, said, "A certain superintendent of my acquaintance gathered up from the streets and the alleys, about one hundred ragamuffins and began to give them a kind of prevocational work. They didn't take to it very well; and he considered that it was hardly worth while anyhow."

What complacency! What perfect resignation to ignominous and useless failure!

We wonder how came the "ragamuffins" on the streets and in the alleys. We wonder again why they were not in school under such a wise superintendent.

In those distraught and perverted centuries before the Christian era, only the perfect children were cared for or even permitted to live; the imperfect and unfortunate—"hardly worth while" children tho innocent, were cruelly sacrificed in order that "the state might have the best."

But that preceded the Great Teacher's message of love. Even in His time, those prominent and officious personages were constantly informing the "rabble" and the "not-worth-while" folk that the Master was busy about His great task and could not be bothered with lowly folk. "But He rebuked them," and gave them to understand that His great task was to help the little ones and the "not-worth-while;" to bring happiness where there had been no happiness; to bring comfort and healing to the unfortunate and the afflicted; and to bring the great message of the worthwhileness of all human life.

We are longing for the time when a broader and deeper human sympathy will permeate all the actions and thoughts of men and women and will be the enemy of a contentment born of neglect and resignation to habitual failure.

BUSINESSMEN AND THE SCHOOLS.

FOR some time the persons responsible for the planning and administering of schools and courses of study have felt the need of the advice and counsel, as well as the hearty co-operation, of the businessman. They have been conscious that the customs and practices of the business world are, in a large measure, responsible for the deplorable condition of affairs in public education. With the hope of leading the businessman and the manufacturer to understand the situation, and to secure their co-operation in alleviating the conditions, teachers have invited so-called successful businessmen to address their associations and to attend educational meetings.

The result has been that the businessman, instead of realizing his responsibility and correcting his practices, has burst out with a storm of criticism of the schools, which has been continued *ad libitum, ad infinitum, adnauseum*. Much of this criticism, however, has come from men who are in reality not successful businessmen, but men who have accumulated wealth thru the exploitation of women, children and the natural resources of the country. Such persons can contribute nothing of value in the solution of our educational problems. Too many times they are interested in schools merely that they may prevent the abolition of their methods of exploitation.

The businessman who has achieved his success thru sound constructive business methods is not so arrogant in his criticisms. His range of vision is sufficiently broad to comprehend the difficulties of the situation.

The businessmen cannot point with any considerable degree of pride to their achievements in the educational field. The School Boards consist of businessmen and we cannot say that they have conducted this department of education with any greater efficiency than the teachers have shown in their work.

Let us welcome the businessman to educational meetings but let us also endeavor to convince him that there remain a few things for him yet to learn. Let us also try to show him that present day business is largely responsible for present day conditions in the schools. At the same time let us candidly acknowledge that the schools need improving and endeavor to gain the hearty co-operation of all the influences in the community.

A CHASM TO BE BRIDGED.

IN this day of specialization, when the clamor is for intensive training for the specific task and for that alone, it must not be forgotten that there has existed a lamentable chasm between the man in the office and the operative at the machine.

It is greatly to be desired that both shall have the best training possible for their specific duties, but this alone is pitifully inadequate. Along with such training, must come an influence that will lessen the apparent distance between them and will give each a greater appreciation of, and respect for the other, on the broad principle of the "substantial equality of all men in the essence of their humanity."

LEST WE FORGET.

WHEN we are inclined to boast, let us recall the following cold, accusing facts:

1. *One-seventh* of all the thirteen-year-old boys in the schools of all the cities of the United States from 25,000 to 200,000 population, are in the fourth grade or below.

2. *One-third* of such boys are in the fifth grade or below.

3. *One-half* of such thirteen-year-old boys are in the sixth grade or below.

4. *Ninety-two* in every ten thousand of such boys are in the kindergarten!

Someone ventures the defense that many foreign boys of this age are learning the English language in the kindergarten and the lower grades! This probably accounts for *some,* unthinkable as it is. If this is so, it must stop.

Whatever the explanation or excuse, these four facts should bring a blush to the face of every friend of public education.

OUR FREE LIST.

In the vernacular of the small boy, "there aint no such animal." The publishers have received numerous requests for free copies from schools, libraries and persons who for various reasons feel themselves entitled to a free subscription to the Industrial-Arts Magazine.

As we desire to be fair to our subscribers, honest with our advertisers and to obey the United States Postal regulations, we have been compelled to refuse all such requests.

Our circulation is increasing at a very rapid rate and it gives us considerable pleasure to feel that the Magazine is proving helpful to thousands of teachers in all parts of the world.

WHO SELECTS THE TOOLS?

There is a mistaken notion in some parts as to who designates the kinds and brands of tools for the shops. Since superintendents make the orders or authorize the purchase of equipments, some have thought that they personally select the various articles of equipment. Nothing is farther from the truth.

The superintendent, almost without exception, relies upon the Manual Training supervisor or teacher to specify the kinds of tools desired. Therefore, the list which the superintendent orders is almost invariably the uncensored list made out by the man in the shop.

For sane and wise buying, this must be so. It is an insult to a specially trained teacher of shop work to have an untrained person select, without consultation, the shop equipment. Such a procedure should certainly be resented by every teacher of the Industrial Arts work.

CONCERNING TEACHERS' RECOMMENDATIONS.

Much has been said and written on the subject of teachers' recommendations and the practice of issuing such documents. The subject has been treated almost entirely from the administrator's standpoint. There is one phase of the subject which concerns the teachers particularly and which should receive his thoughtful consideration.

When a teacher asks for a recommendation he expects the person who prepares such a paper to say that he is *unusually* bright, energetic, skillful, capable, conscientious, tactful, earnest, willing, loyal—or some other adjectives denoting desirable qualities. A statement to the effect that "John Pedagog is just a common manual training teacher whose work is just like all other manual training teachers," would not be considered of much value. The teacher wants the writer of the recommendation to state that his work is out of the ordinary and somewhat superior in quality.

When he is asked to do a little additional work outside of school hours, or to improve the quality of his work, the teacher often replies that he is working as many hours as the other teachers and his work is just as good as theirs. The teacher wishes his superior to consider him in the same class, and on the same plane, as the other teachers when the work is under consideration. But when the superior is dealing with superintendents, or with other superiors, the teacher wishes to be considered as above the other teachers—*unusually* capable, energetic, etc. The teacher is not willing to be considered at his own rating of his work.

The teacher is entitled to a truthful statement from his supervisor or superintendent, giving a fair and just estimate of the work which has been done by the teacher. The teacher is not justified in asking for any statement over-rating his ability and his work. If the teacher wishes to be highly recommended he should see to it that his work is of a quality which is unusual or extraordinary; and, as a rule, he will find that he has no trouble in securing *"A 1"* recommendations.

Try writing a recommendation of yourself and your work. Write in all of the good things which you would like to have written about yourself. Put it where you can see it every day and then endeavor each day to make that recommendation a truthful one.

SAFETY FIRST.

The bursting of a gas tank which severed one hand of the instructor, and blew one arm and a leg off of a boy in a Massachusetts vocational school, emphasizes the need for a consideration of "safety first and always" in our schools. In the installation of machinery, tools and other devices for vocational training, too much attention cannot be given to the safety element. This will not only serve to prevent accidents in the schools but will instill in the minds of the pupils the need for care and attention in the operating of machines.

BEAUTY IN ART.

Beauty is born of attention, as happiness is born of life, because attention is rendered difficult and painful by lack of harmony, even as life is clogged, diminished or destroyed by pain. And therefore, when there ceases to exist a close familiarity with visible objects or actions; when the appearance of things is passed over in perfunctory and partial use (as we see it in all mechanical and divided labor); when the attention of all men is not continually directed to shape thru purpose, then there will cease to be spontaneous beauty and the spontaneous appreciation of beauty, because there will be no need for either. Beauty of music does not exist for the stone deaf, nor beauty of painting for the purblind; but beauty of no kind whatever, nor in any art, can really exist for the inattentive, for the over-worked or the idle.—*Vernon Lee.*

The difference between true works of handicraft and mere "art things" is, that the latter are made to sell, and appeal to love of display in the buyer, while the former are made for use and its appropriate beauty,—and appeal to love of use and beauty in the buyer. Good workmanship is essential always, but the right motive is what gives to good workmanship its life and interest.

A LITTLE ARGUMENT ON GREAT PRINCIPLES

"Artful Teaching"

"BUT, Mr. Frills!" contended Try Square, "teaching is impossible without formulated information based upon principles and guided by rules and regulations. My understanding of teaching is that information is imparted by the teacher and received by the pupil, who acts upon the information so received, and becomes educated in the process."

"That sounds like a good recipe," replied Mr. Frills. "But recipes are rarely followed implicitly by *good* cooks, and surely cooking is not a greater *Art* than teaching!"

"Art! Art! There you go again!" replied Try Square testily. "I am a Manual Training Teacher and not an artist. I impart information and require the pupils to do their work well. As for Art, I am unable to even define it, and I have yet to hear of two artists who agree as to the definition or principles of Art."

"Quite so!" mused Frills blandly. "All good teaching should be flavored with Art, because Life itself should be flavored with Art. From the most lowly occupation to the great Profession of Teaching, all work well done requires more or less of Art. *Your* method of teaching is a process of *filling* the pupil with *knowledge* from *your* bountiful supply. Your recipe leaves out the flavor of Life! Art!

"So *Art is the Flavor of Life,*" replied Try Square grimly. "I am glad to have such a *definite definition* of Art! Confessing that I am not an artist, my life and my teaching must be without flavor. Now, Mr. Frills! As a friend please tell me where and how this flavor may be obtained and applied to my life and teaching to make them artistic."

"You give me a difficult proposition, Mr. Try Square," replied Frills with gravity. "Art! the flavor of life is not on the market at a fixed price or place. It is the essence of Democracy. It considers that each and every soul is a free agent able to express itself if properly directed and aided. It must be applied to the minds of the pupils in teaching so that there is a response from the pupil to the teacher which reflects the individuality of the pupil. Without Art teaching is a mechanical impartation of knowledge which results in little development of the individual. With Art teaching becomes the greatest of professions; leading out the individuality of the pupil, and developing a flavored life of useful happiness."

"That sounds very fine indeed, Mr. Frills, but for the sake of clearness allow me to review your statements. You say that 'Art;' 'The flavor of Life;' 'The Essence of Democracy;' considers that every soul is able to express itself with proper direction and help from the teacher.' You do not answer my questions of how this *flavor* or *essence* may be obtained or applied. You merely state that it is *'Not on the market at a price.'* I suspicion that you are confusing the 'Art of Teaching' with the 'Teaching of Art.'"

"No!" answered Frills with conviction, "I am not confusing them, I am fusing them. My business is the *'Artful Teaching of Art.'*"

HOW IT WAS DONE!

The purpose of this Department is to present monthly a wide variety of shop projects which have been actually worked out in elementary, high, trade and continuation schools. Contributions are solicited and will be paid for—THE EDITORS.

A PROBLEM IN WOOD AND COPPER.

Allen D. Backus.

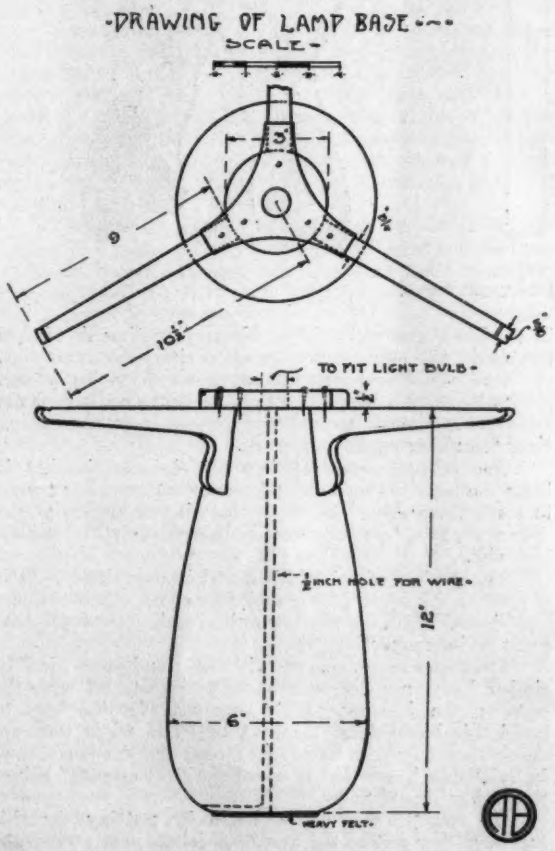
IN the school shop where bench work in wood is carried on, the monotony of working continually with one medium may be relieved at little expense by employing problems which include work in some of the soft metals such as copper or brass. If the right choice in the kinds of wood is exercised and the metal finished in the proper way the combination will prove very pleasing.

To illustrate the use of wood and metal in the same piece of work I have chosen a lamp which has proved to be an excellent problem for high-school boys and could even be worked out by boys in the eighth grade. The lamp shown here is a combination of mahogany and copper and is intended for electric lighting but could be adapted for gas or even oil. The base and brackets are made of mahogany while the shade is composed of pierced copper backed with art glass which can be procured in any shade desired at a stained-glass window establishment.

On account of the difficulty of obtaining mahogany of sufficient thickness it will be necessary to glue up the stock for the base which is then turned to the required shape. Care must be taken to keep both the bottom and top of the base flat and at right angles to the vertical axis. After having turned the base the three arms or brackets can be made. Because of the shape of the base it was quite a problem as to the best way to join these arms to it. As shown in the drawing it was finally accomplished in such a way that the arms form a separate part of the lamp and can, by the removal of three screws, be taken off, which would, of course, be impossible were they tenoned into the base. A great deal of care must be exercised in cutting the part of the arm which makes the joint with the base so that when the two parts are assembled no open joints will be visible. Before finishing this part of the lamp a hole for the wire should be bored thru the vertical axis of the base and a connecting groove cut in the bottom as shown in the drawing. A natural finish

should be given the wood by applying several coats of first class varnish, rubbing each coat well before applying the next. The final coat should be well rubbed to remove the high polish. The rubbing may be done with ground pumice and oil. A piece of thick felt cut to fit the bottom of the lamp should be glued to the base. This answers two purposes, first, it forms a protection to the table or other surface on which the lamp may be placed, and secondly, it conceals the groove which was previously cut in the bottom.

The shade is made of 20 gauge copper in seven sections, six sides and the top. After having drawn the design on a piece of paper the exact size of one side of the shade, six pieces of copper should be cut out each the same size and about an inch larger each way than the actual size of the pattern. With a piece of carbon paper the design should be traced on one of these after which all six may be firmly riveted together, the rivets being placed thru the copper left around the outside and thru parts of the pattern which are to be cut away. Holes are next drilled thru all spaces which are to be pierced. The shade is now ready for sawing which should be done just outside the line in order that the edges may be finished with a file without changing the original pattern. Before this filing can be done the parts must be separated and each one trimmed down to the exact size of the side. A novel finish may be obtained by laying each side on a block of soft wood and carefully going over it with the round part of a jeweler's hammer, producing a surface which will greatly add to the appearance of the shade.

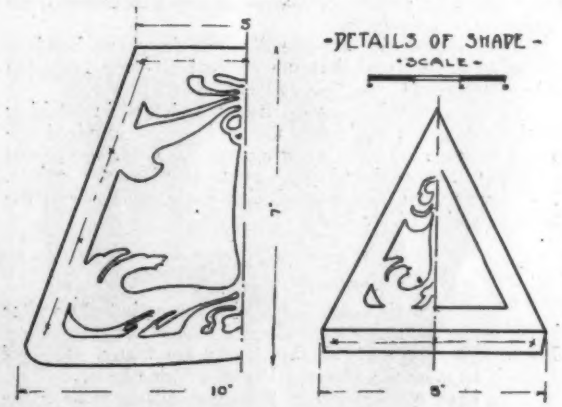


Details of Wood Parts of Lamp.

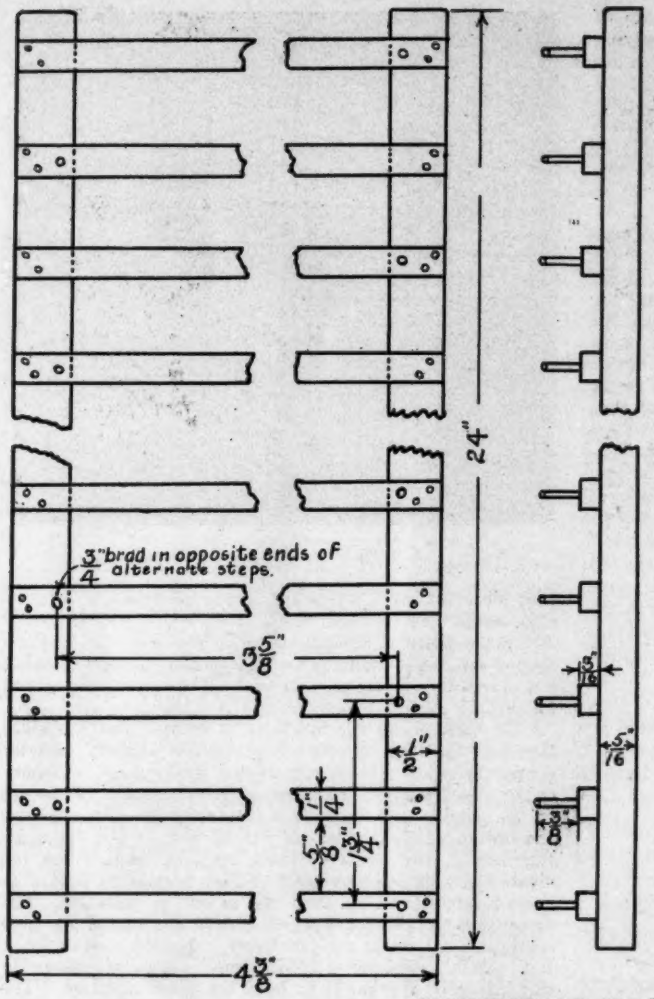
Lamp Designed by Mr. Backus.

The piece for the top is made in one part in the form of a hexagon, one unit of which is shown in the drawing. After the pattern is transferred to this piece it may be shaped somewhat with the hammer so that instead of being flat it will be slightly pyramidical. The sawing, filing and finishing is done the same as on the sides.

In assembling the shade it is best to put the sides together first by means of strips of slightly heavier copper 1½" wide. These are riveted to the sides thus fastening them securely together. The rivets should be set on the outside thus forming a feature which adds much to the design of the shade. It will be best to put the sides together in two parts of three sections each. The top rivets must be left out until the top section is put in as these rivets also fasten thru this as well as the sides. The flange left on the top fits just inside the top of the side sections. All rivets are put in as indicated on the drawing. It is necessary to solder small pieces of copper on the inside of the shade to hold the glass in place. The shade may now be cleaned by rubbing it over with a solution composed of one part sulphuric acid and six parts water (care must be taken not to get any of this solution on the hands or clothes); it may finally be polished with very fine emery cloth and rouge. The fitting of the bulb is quite a simple matter and should give no difficulty.



Details of Metal Shade.



SOMETHING TO LAUGH AT.

A Manual Training Toy.

A TOY SUITABLE FOR GIFT PURPOSES.

SOMETHING TO LAUGH AT.

THIS toy has afforded several thousand youngsters and a few older persons considerable amusement. The clown is made of wood one-eighth or three-sixteenths inch thick, and when placed at the top of the ladder with his fingers resting on one of the brads, he will descend the ladder quite gracefully.

It is important that the distance from one hand to the other be 3¼" and that the vertical distance from the side of the feet to the fingers be 3½".

In one school having a printing outfit, a zinc etching of the clown was made full size and several hundred impressions were made on drawing paper. Each boy pasted a paper to the wood and then cut the wood on the outline. The clowns were then colored with water color to suit the taste or whim of the boy.

A SUGGESTION.

Milan G. Twichell.

The illustration shows a model house that the writer built while at the State Normal School at Fitchburg, Mass. The purposes of this house are many. One of them is to show the construction of a frame house.

No drawings are given, the object being to have the pupils of the higher grades furnish the design and work out the drawings. Another purpose is to interest the boys in the lower grades in the problem of putting this house together. The house is put together with screws and pins.

One would not expect boys in the sixth or seventh grades to make a house like this one, but they can put it together, and while they are doing that they are making their "thinking apparatus" work.

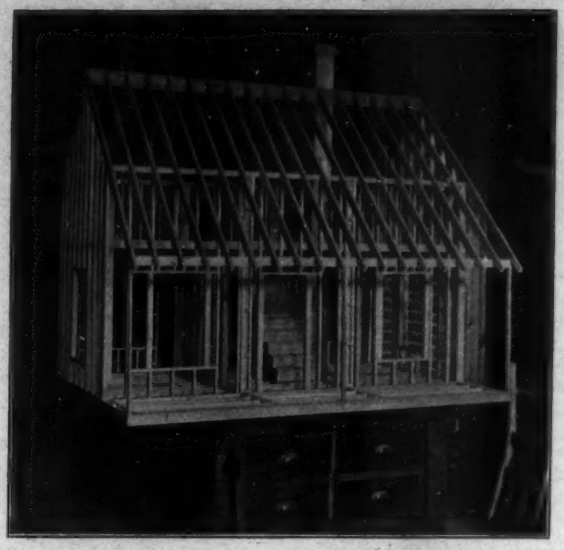
One other purpose of this model house is that it helps the boys to "see and understand" what one is trying to teach them about the house, that is, the names of the different parts, how they are made, how they fit together and why.

The method of using this model is very simple. It is a problem in construction and like every other problem one should begin at the beginning and work from that point to its completion.

Drawings were made of this house, and every piece of timber has a number or a letter to correspond with the ones on the drawing. It is very easy for the boys to build this house from the drawings, and while they are doing this they are learning to read the drawings; and in building a house that is one of the most essential things that a boy should know.

To "build" this house, begin by putting the sills together, then put in the first floor joists, next put up the corner posts, etc.

Any instructor that has ever built a real house will



Model House Constructed by Mr. Twichell.

know what to teach the pupils to do next. This model was built to a scale of three inches to the foot and as far as it is completed is true to a full sized house.

A CRITICISM ANSWERED.

To the Editors:

It was with a mingled feeling of surprise and regret that I read a criticism in the November number concerning a design for a piano bench that was signed "Reader," of St. Paul, Minn. I was surprised that any man—a teacher of cabinetmaking, I take him to be—would so severely censor the design of a ninth-grade pupil, without carefully reading the accompanying article, and I regret very much that you did not submit his criticism to me for answer.

Criticism, especially in the case of furniture designs, is largely a matter of personal opinion. I cannot condemn a design because it does not appeal to me and do the designer justice. I, or any other person, can condemn the design of any article ever submitted—but only because *I* do not like certain points in it, or the whole.

As to the article in mind. If your "Reader" will carefully read the text accompanying the article "Suggestions for Furniture Design," he will find that we did not submit the piano bench as a model to be promiscuously copied. We explained how this design was wrought out in the ninth-grade boy's own mind, with suggestions from photographs and catalogues to help him. We also showed how the legs can be changed—"left square, turned, or shaped." We have had all styles made in our shop, and the shaped leg, as we have photographed it, has proved to be the most popular with the boys and with older people.

I am willing to admit that the photograph submitted with the article was very poor and distorted, but teachers usually pay more attention to the working drawing, than to a photograph, on this account. I am enclosing another picture that does not show this distortion, and trust that you will reproduce it.

The reader states that he would see no fault with the design if the cross pieces were left out and the legs run to the floor without a tie at the bottom. With the construction of the bench confronting you, this would be impossible, as the legs, as stated in the article, are screwed into place thru the bottom of the box, and two screws, in end grain, would never keep the legs straight no matter how long the screws were. If the legs were run thru the box and screwed in from the inside, you would have the unsightly squares in the corners when the cover was lifted —something we tried to avoid. If the sides were mortised into the legs, you would be coming back to the old Mission style—and the boy would not have the excellent practice of mitering his box corners.

I approve very much of the opinions you wrote in answer to his criticism, but some of the suggestions you offer in your profiles would be rather difficult for the average ninth grader to attempt—as the experience of our boy must be kept in mind. For instance, the cove you have represented at the top of the legs in the right hand profile would present a difficulty, as almost the entire length of the leg would have to be chiseled rather than planed, and the cove itself would probably need to be filed out smooth —a practice that we condemn severely.

I trust, that, in justice to the boy who designed the piece, you will print this letter, and the "Reader," or anyone else interested in the discussion, has the privilege of writing me at Davenport, Iowa, High School, if they care for further explanation.

Ralph F. Windoes.

Davenport, Ia., October 24, 1914.

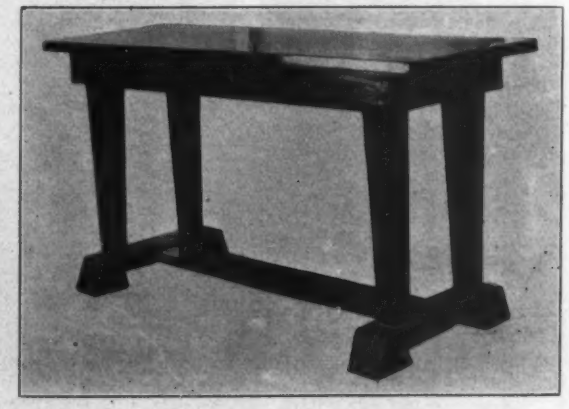
CORN LESSONS FOR COUNTRY SCHOOLS.

For the benefit of children in rural schools suggestions for a series of lessons on corn are about to be issued by the U. S. Department of Agriculture. The average production per acre of corn in the United States is still below 28 bushels per acre despite the fact that in almost every section of the country yields of more than 100 bushels have been obtained. The difference indicates in a measure the value of proper instruction in growing corn. The spread of boys' corn clubs all over the country has also emphasized the need of corn study in rural schools.

The forthcoming bulletin contains outlines of twelve lessons covering such important points as the different kinds of corn, ways of judging corn, seed, corn crop rotation, best kind of fertilizers, proper cultivation and the food value of the crop. Suggestions for the proper observance of corn day have received consideration. Rural school teachers, especially in the great corn-growing states, will find the bulletin a valuable aid in the work of stimulating in their charges a healthy interest in sound agriculture.

This bulletin will be published under the title of Farmers' Bulletin No. 617, "School Lessons on Corn," and copies will be sent free as long as the supply lasts.

Louisville, Ky. The prevocational school, established experimentally last year, has been continued on a larger scale. The building has been remodeled and extra teachers added. In addition to shop work and academic subjects, electrical wiring, bookbinding and trade sewing have been added to the course.



Piano Bench Described by Mr. Windoes.

NEW YORK CITY HIGH SCHOOL ART EXHIBIT

Morris Greenberg, Commercial High School, Brooklyn, New York

AFTER viewing the exhibition of the Art work of New York City high school, Charles H. Caffin, the Art Critic wrote: "The work represents strides in the all important problem of fitting the boys and girls who leave our high schools to find employment in those trades which demand artistic knowledge and skill."

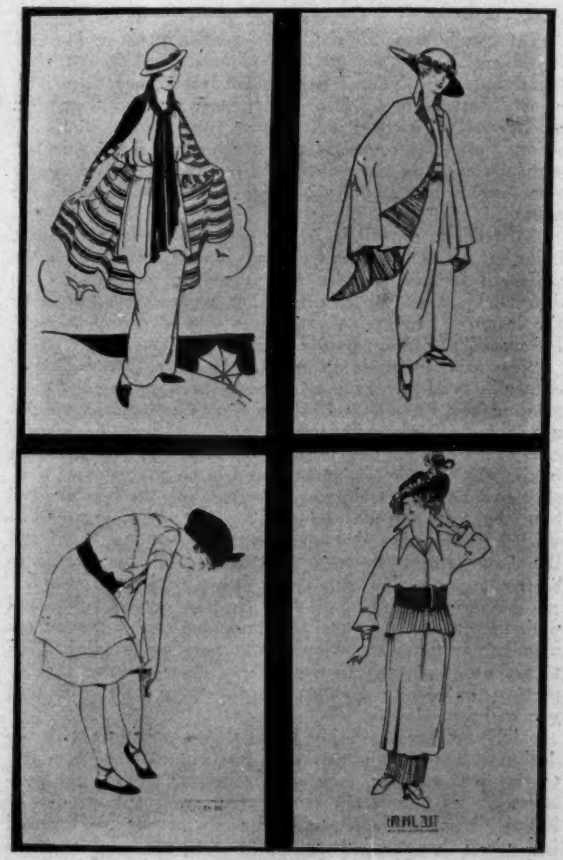
The exhibit was held on Oct. 16, 17 and 19th, under the auspices of the School Art League, of which John W. Alexander is president. The exhibition place alone was sufficient to make the showing one of unusual importance. In two spacious halls of the Fine Art Building, where the National Acadaminins display their paintings, the visitors saw more than a thousand drawings so skillfully arranged, that this feature alone received favorable comment from all. There were 64 framed panels, each containing a number of drawings of similar technique, and each appearing as a single unit. It was only thru the united efforts of over 100 teachers under the able leadership of our Art Director, Dr. James P. Haney, that such an undertaking was made possible. The drawings and crafts work represented the best from a selection of the work of 5,000 pupils in twenty-five high schools. "Different from anything shown before," was the comment of teachers who came from the cities of neighboring states, from Washington, Albany and Boston. As one entered the halls and sought to obtain a general impression, the striking things were the masses of harmonious colors, the original solutions, the practical aspects of the problems and the fine craftsmanship.

The secret of the technical excellency of the work displayed is easy to fathom. Formerly in the fear that the pupils might miss something of "art" in case they were compelled to leave high school, they dabbled in perspective figure drawing, color work, design and picture study—all in one term. In New York a boy or girl is required to execute four completed design plates or seven representation drawings in a corresponding period of time. A few things, well planned, and carefully executed, will lead to greater facility in the advanced work, as this exhibition showed.

It isn't so very long ago that the manual training problem was presented to the pupil with the aim of promoting manual dexterity plus the discipline which comes from working out a complete project. The art elements—fitness, proportion, decoration—did not enter into the matter. Similarly there was a time in the art teaching in the high schools of the country, when designs were planned with no practical aim in view, but simply to illustrate certain principles, such as rhythm, unity, balance, variety, etc. That both tendencies just mentioned are disappearing was again demonstrated at this exhibition, in the design and crafts work shown. The former was practical, and sometimes executed in the actual material, in no amateurish way. Cases in the central parts of the rooms were filled with finely finished objects. As one critic remarked, the work in design was a revelation. The methods resulting in such work are as follows: Each teacher chooses some center about which the design projects are planned. If, for instance, the center is "dress," the problems may be for handbags, embroidered belts, lace collars, buckles, etc. In the course of the term the question of taste, as applied to dress, is taken up. Where the center is "home," articles of furniture, window and door divisions, lamp-shades, etc., become the problems, and emphasis is laid on discrimination in connection with the home furnishing and decoration. In industrial schools, the design work is centered about problems that may be executed in wood, clay, iron, copper, or silver-materials that the students deal with in the shop. Here special attention is paid to the limitations that material imposes upon design to the questions of proportion, fitness, etc. In the commercial courses, work that relates to lettering is emphasized. Here window cards, car ads, street posters, trademarks, tail-pieces, etc., are the problems studied. The pupil is shown the value of good design as a commercial asset, and is given the foundation of appreciation along this special line. All of the work shown, in connection with the teaching described, was characterized by a fine understanding of the nature of the problem, by original conceptions and by a high grade of technique.

The German influence was felt in the groups of object drawing executed in tempera—an old medium applied in a new way. Many of the posters exhibited were similarly executed and were characterized by a direct and simple handling and strong color effects.

One of the panels showed the work in interior decoration by girls who took a five-period elective course in the last year. The plates consisted of designs in spacing, arrangement and perspective interiors. They were not "adapted," but were original in planning and most harmonious in color treatment. One thing about these drawings the average visitor did not know. It was, that the girls pursuing the course made a number of after-school visits to upholstery shops, wall-paper establishments, interior decoration studios, and exhibition rooms in department stores, observing, taking notes and studying materials in preparation for their designs. Next term, each member of this class will fit out a small favorite room using toy



COSTUME DESIGNS.
Made by Students in Second Year Industrial Art Course, Washington Irving High School.

furniture, actual wall-papers, textiles and floor coverings, in an effort to obtain a harmonious whole. This is indeed vital art training.

Of special interest and highly professional was the work of the girls from Washington Irving High School, where, after the first year, pupils may specialize in a two-year industrial art course of 19 and 22 periods per week. Here hung beautifully finished drawings of birds and reptiles in pencil and in ink. Nearby were shown tempera design plates composed of most original units derived from the forms just mentioned. Adjoining were costume drawings that displayed a knowledge of the human figure and a certainty in handling. On one side, hung posters and window cards unusually good in lettering, draughtmanship, and color. Many asked how it was possible for 16-year-old girls to do such work.

Most creditable was the contribution to the exhibition of the 37 After-School Art Clubs. These boys and girls have the makings of the future art teachers, craftsmen, and artists. It is at these meetings that seeds are sown which often take root deeply, and blossom out into art efforts within a few years. The groups were engaged in different activities as the work proved. Some showed fine still-life drawings in water color and in tempera; others displayed sketches from the costumed figure in various media; four of the clubs exhibited large posters advertising different school activities; our group was represented by some fine photos that showed both an artistic feeling and a professional touch. Several clubs showed fine craftsmanship in objects of silver, copper, embroidery, hedebo work, etc. These were pleasingly arranged in several cases.

There was plenty of actual drawing done in the halls while the exhibition was on. The visitor had the opportunity of seeing magic hands at work on problems similar to those on the walls, and there was generally a crowd about the tables where young ladies busied themselves. One drew from a cast; another dexteriously depicted a likeness of a stuffed bird; a third designed a window card, lettering in the words with the greatest freedom; one girl made a perspective study of a miniature house, while her neighbor drew a commercial trademark based on the study of actual objects. These pupils went on with their work in a free fashion just as busily engaged as tho they were in their own school studio.

The exhibition was a revelation to the general public. The teachers in particular were stimulated by so strong a showing, which proved what may be accomplished by the systematic pursuit of a subject. The high standards attained by some brought resolutions, on the part of others, for better work during the coming year. Finally the long-hoped-for possibility of establishing a day industrial art school in New York City, was advanced a step. Surely the effort of the teachers and the directors was worth while.

THE SOUTHERN TIER VOCATIONAL TEACHERS' ASSEMBLY OF NEW YORK met in Elmira, on October 17th, with nearly fifty instructors of vocational subjects in attendance. Addresses were made by R. T. Lewis, manager of the Empire Bridge Co., on Vocational Education from the Manufacturer's Standpoint; Anna L. Leggett, professor of home economics, Elmira College, on The Byways of Home Economics; Miss Mary Muldoon, principal Waverly School, Elmira, on Courses of Study, Outlines of Bookwork. Addresses were also made by Miss Anna Hedges, Albany; Supt. Asher H. Jacoby, Elmira; Hon. Thomas Milan, president of the Elmira board of education.

ORIGINAL DESIGNS FOR INTERIOR DECORATION.

Made by Girls in the Fourth Year Elective Course. (Further illustrations will appear in the January issue of this Magazine.)

ITEMS OF CURRENT INTEREST

VOCATIONAL EDUCATION IN PENNSYLVANIA.

During the first year of the operation of the Vocational Education Act, five school districts participated in the distribution of the State funds given for the purpose of aiding in the establishment and maintenance of agricultural education. All of these districts maintained successful high schools. To each high school was added a Department of Agriculture in charge of a man specially trained for this work. In each school there was offered a four-year course in agriculture based upon the principle that one-half the boys' time is spent in the study of practical subjects and the other half in the study of academic subjects. The purpose of this type of training is to give the boy a well-rounded education, combining the training of the hand with that of the head. Good citizenship is considered of as great importance as a knowledge of the soil. The five schools above referred to are located as follows: Waterford, Erie County; Honesdale, Wayne County; Montrose, Susquehanna County; Troy, Bradford County; and Mt. Pleasant, Westmoreland County. Seven other counties will have the benefit of vocational agricultural instruction this coming year, schools having been established at the following places: Cambridge Springs, Crawford County; Mercer, Mercer County; Mansfield, Tioga County; West Sunbury, Butler County; Lampeter, Lancaster County; Elders Ridge, Indiana County; and Salix, Cambria County.

Day, continuation and evening industrial schools have been in operation in Pennsylvania during the past year. The day industrial schools in Philadelphia and Pittsburgh have just completed a very successful year. Notwithstanding the excellent work done by these schools, the problem of educating the boys for industrial pursuits has been barely started in these cities. Realizing the need for greater activities in this line, the school authorities are busily engaged in perfecting plans for the further extention of industrial education. A continuation class was conducted in the Philadelphia Trade School this past year.

The first class, 23 in number, was graduated from the York Continuation School in June, 1914. The work in this continuation school now includes the trades of machinist, patternmaker, cabinetmaker, plumber, automobile builder and wagon-maker. Eighty-seven boys in this school earned during 1913-14, $10,591.02.

Evening Industrial Schools were conducted in the following places: Nanticoke, Wilkes-Barre, Scranton, Ellsworth, Cokesburg, Williamsport, Altoona, Philadelphia, Shickshinny, Pittsburgh, Wanamie and Shamokin. Instruction in mine gases, ventilation, laws and survey, mining arithmetic and drawing, elementary mining and electricity was given in Nanticoke, Wanamie, Shamokin and Shickshinny. The text for these lessons was prepared by Mr. J. J. Walsh, a practical miner, and distributed to the schools by the Department.

The remainder of the Evening Schools gave courses for the machinist, patternmaker, boiler-maker, sheet metal worker, plumber, carpenter and electrician. Instruction in these schools consisted in the reading of blue prints and the making of working sketches, shop mathematics and elementary mechanics.

Three districts, Titusville, Gettysburg and Waynesboro, organized and maintained last year day household arts departments with a total enrollment of 83. The courses at Waynesboro and Gettysburg are to be four years long, while the one at Titusville will be but two years long. The first year's instruction in these schools consisted of cooking, sewing, applied design, first aid to the injured, sanitation, marketing and serving. Pupils and teachers alike were enthusiastic over the work. In every instance the work was very successful.

GRAND RAPIDS VOCATIONAL SURVEY.

Mr. A. D. Chipman has recently been appointed by the board of education of Grand Rapids, Mich., to conduct a survey of local industries for the Vocational Guidance Bureau of the public schools.

The bureau was opened during the year 1913, and the intervening time has been spent in preparing a working schedule. During the present year, it is planned to undertake, under the Director of Vocational Education, investigations of the respective trades relative to vocational opportunities and to compile data for the use of the bureau.

The findings of the survey will be collected for printing in book form, and will include facts about the number and kind of industries, the national advantages, chances of promotion, minimum and maximum wage, hours and years of preparation for each vocation.

The vocational records are to be open to all students for reference at any time they may decide to enter a life occupation. At this point, an effort will be made to ascertain the child's adaptability for the trade or occupation selected, and to recommend that for which he seems best fitted.

NORTH DAKOTA MEETING.

The Industrial Section of the North Dakota Educational Association met at Bismarck in the afternoon of October 23. The program was given exactly as announced:

The Function of Industrial Work in the Educational System, President R. M. Black, State Normal and Industrial School.

The Country School and the Industrial Curriculum, County Superintendent Helen Sullivan, Cavalier County.

Training the Girl for Her Responsibility as a Consumer, Miss Bessie Taylor, Director Home Economics, Agricultural College.

Organization in the Wood-Shop, Instructor George M. Hargrave, Walsh County Agricultural School.

Vocational Training and Liberal Culture, Supt. C. C. Schmidt, University High School.

Round Table—Household Economics in the High School. Led by Miss Nellie Farnsworth, State Normal of Valley City.

Round Table—Agriculture in the High School. Led by Principal William Jackson, Benson County Agricultural School.

The paper by President Black brought out the growing recognition of industrial work as essential to an educational system. He touched upon Manual Training in its relation to the industrial side as well as the liberal side. Mr. Black gave some practical illustrations of the application of the industrial idea.

Miss Sullivan gave a number of instances of the development of the industrial subjects in country schools. Agriculture is, of course, the leading phase of this, with household arts second. She brought out well the equal participation of boys and girls in the benefits of such courses.

Miss Taylor related the new aspect of the economic side of women's work. Cut off from productive activity by modern conditions, the homemaker finds in consumptive activities, the refining forces of civilization.

Mr. Hargrave, set out that a manual training teacher must organize his own knowledge, his subject matter and his students. He described the plan which he has used, with wood-shop departments, foremen, etc.

Professor Schmidt defined his terms with great care. He called attention to the fact that the courses often termed "liberal" were, in fact, narrowly specialized courses, pointing only to a life in certain bookish pro-

fessions. He quoted freely from authorities and presented a careful scholarly analysis of the situation.

The Round Tables were held simultaneously in different rooms and were given to informal discussion. In the Agricultural section, the talk turned mostly upon the qualifications of teachers. In the Home Economics group, the center of interest was economy of material in the laboratory and plans for self support. Some time was taken in plans for the meeting next year, including a Home Economics luncheon.

At the business session, Miss Nellie Farnsworth was elected president to succeed William A. Broyles; Mr. Wm. Jackson, vice-President, and Miss Helen Sullivan, secretary to succeed Hughina McKay.

William A. Broyles.

NATIONAL VOCATIONAL GUIDANCE ASSOCIATION.

The annual conference of the National Vocational Guidance Association will be held in Richmond, Va., on Monday and Tuesday, December 7th and 8th. The meetings of the National Society for the Promotion of Industrial Education will follow on Wednesday, Thursday, Friday and Saturday. There will be several general sessions and round-table conferences for directors of vocational guidance and others interested in this work.

Among the speakers are:

Wm. P. Leiserman, Director of State Free Employment Offices, Wisconsin.

W. O. Burroughs, Vocational Director of Pittsburgh.

Philip Davis, Civic Service House, Boston.

Ira S. Wile, M. D., Member New York Board of Education.

J. D. Elliff, University of Missouri.

Miss Julia C. Lathrop, U. S. Children's Bureau.

Miss Anna C. Hedges, Brooklyn.

David Spence Hill, New Orleans.

W. A. Wheatley, Superintendent of Schools, Middletown, Conn.

P. P. Claxton, Commissioner of Education, Washington, D. C.

OPENS VOCATIONAL BUREAU.

Dr. Charles S. Foos, Superintendent of Schools of Reading, Pennsylvania, has organized a Bureau of Vocational Guidance with Wallace E. Hackett as director and Franklin V. Gill as secretary. The idea of this bureau is primarily to bring the school into closer relationship with the child and the home in order to better prepare them for their life's work.

It will make a thoro examination of those who are about to leave school, to determine the reason for so doing: whether it is on account of financial pressure at home, physical disability, or lack of interest in school work. The result of this survey may help in the readjusting of some of the school courses, such as the introduction of more prevocational schools and part-time courses, etc.

While the bureau will make every effort to encourage and help the boys and girls to continue in school it will also assist in finding for them suitable vocations, if their leaving is necessary. It will make a thoro study of the city's various trades and industries, carefully balancing their advantages and disadvantages in every respect, that the boys and girls may make an intelligent choice of their work. Children will be examined closely to find out the work that will be best adapted to them.

A NOTEWORTHY EXHIBITION.

The Thirteenth Annual Exhibition of Industrial Arts opened the season at the Art Institute of Chicago on October 1st, and closed October 25th. This display was originally known as the Arts and Craft Exhibition, and it is interesting to note that the tendency of the Art Craft movement has been toward the development of the Industrial Arts.

The display was the most extensive ever shown, having over twelve hundred entries from all parts of the United States, consisting of an exhibition of Hungarian Peasant Pottery, Weaving, Silverware, Jewelry, Ceramic Art, stained glass and glassware, fine tooled and illuminated leather, bookbinding, woodwork, furniture, and metal work.

The four Municipal Art League of Chicago prizes went to George H. Troutman, of Chicago, for Lamps and Fixtures in Copper; Thomas F. Googerty, Pontiac, Illinois, wrought iron work; Virginia Chester, of Chicago, bookbinding; and Albert Wehde, of Chicago, jewelry.

The Mrs. J. Ogden Armour prize was awarded to the Fulper Pottery Company, of Flemington, New Jersey, for a group of bowls.

The Atlan Ceramic Art Club prize was given to Ora V. White, of Minneapolis. Honorable mention was given to Francis E. Newman, of Minneapolis, and Florence A. Huntington, of St. Paul.

The Arthur Hewn prize was won by Mrs. William H. Klapp, of New York.

The Mrs. Albert H. Loeb prize was won by Elizabeth E. Copeland, of Boston, for Silver and Enamel Work.

The Mrs. Julius Rosenwald prize went to Mrs. Pauline Fjelde, of Minneapolis, for Tapestry. Honorable mention was given to Fayette Barnum, of New York City, for block printed textiles.

AMERICAN ARTISTS.

One of the sins of American industry in the past has been its failure to develop or even to encourage the industrial artist at home. It was taken for granted by the silk mills of the country, for instance, that they must go abroad for their designs. The same is true of the carpet and tapestry industry, of stained glass, and even of wall paper, to mention but a few. While American brawn was used in the manufacture of these articles, the designing of the same was always done by "foreign talent."

It is not to be denied that in many of the arts intimately connected with industry the Europeans are superior to us. It is in the nature of the German, for example, and especially in his education, to give more attention to detail than an American gives it. All of these characteristics, however, can be acquired. The fact that Americans have been slow to acquire them often is a reflection on the course and policy of our industries fully as much as on the character of our men and women artists. Our industries too frequently refuse to give the American designer a hearing. He is turned away on the assumption that the finer points of industry will never be mastered by the homespun designer or decorator.—*Chicago Tribune.*

HOLD CANNING EXHIBITION.

The girls of the domestic science classes of the Little Rock, Ark., High School, supervised by Miss Myrtle Wilson, gave an exhibition in canning on October 4th, the first of its kind in Little Rock schools.

The canning apparatus was placed on the school grounds and the tables, on which the 210 girls worked, were placed in a circle around it. The cans, after being filled, were placed in canners, consisting of perforated tubs placed within a larger tub situated over a fire, and allowed to remain for about five minutes. The cans were put in hot water, after soldering, and cooked. When finished they were labeled with United States government labels, and are to be used in the domestic science department of the school during the year.

This lesson was of such a satisfactory nature that it is thought that the exhibition will be repeated each year.

CENTRAL NEW YORK VOCATIONAL TEACHERS MEET.

The Central New York Vocational Teachers' Association held its semi-annual meeting in Utica, N. Y., on October 30th and 31st. The program was very instructive and helpful and the meetings were largely attended. Among the more important topics discussed we note the following:

"American Commerce and the Technical High School," given by Mr. H. B. Smith, Director of Industrial Education, State College for Teachers, Albany, N. Y. Mr. Smith gave some very interesting statistics on our imports and exports and from these figures drew several valuable conclusions with reference to the work of our technical high schools.

"Meaning of Vocational Training for Girls," was treated by Miss Anna Hedges, Specialist in Homemaking, Education Department, Albany, N. Y. Miss Hedges treated the topic in a broad way. Her talk was very inspiring to all.

"Elements that Contribute to the Success or Failure of Manual Training Teachers," was treated by Mr. J. C. Park, Director of Manual Arts, State Normal School, Oswego, N. Y. Mr. Park showed why these teachers succeed or fail and gave some valuable advice along this line. Mr. Park said in part:

> The ideal teacher in this new line of industrial work is one who has had sound academic, shop, and professional training; one who has teaching power, disciplinary ability, and a knowledge of the adolescent period of development; one who can win the confidence and respect of pupils, and one who is popular with parents, associates and pupils. Other necessary qualifications are a pleasing personality, tactfulness, adaptability, co-operative spirit, good judgment, and a character that cannot be questioned. He must not only be master of the fundamental principles of the trade involved, but he must be a skilled workman. He must understand the industrial condition of the community in which he works so that the industrial work can be adapted to the needs of the community. Some of these qualities are inherited, others are acquired.

"The Present Status of Manual Training and Handwork in the Grades (A study of Reports from one hundred cities), was given by Mr. C. L. Harlan, State Normal School, Oswego, N. Y. Mr. Harlan illustrated his work by nine charts from which we deduct the following facts:

> Only about one-half of the schools studied offer any handwork or manual arts courses. The median number of minutes per week given to manual arts is 75 minutes for Grades I to VI, and 90 minutes for Grades VII and VIII. The percentage of total school time given to this group of subjects is 5.5%. This percentage has increased from 2.9% in 1904 to 5.5% in 1914. The charts also show in what grades each kind of work is pursued and where the emphasis is placed, also that there is little correlation of manual arts with other subjects after the Third Grade. In a large percentage of cases segregation of sexes occurs in the Fifth Grade. Nearly three-fourths of all courses are non-vocational, while only about 5% are strictly vocational, the other being semi-vocational in character.

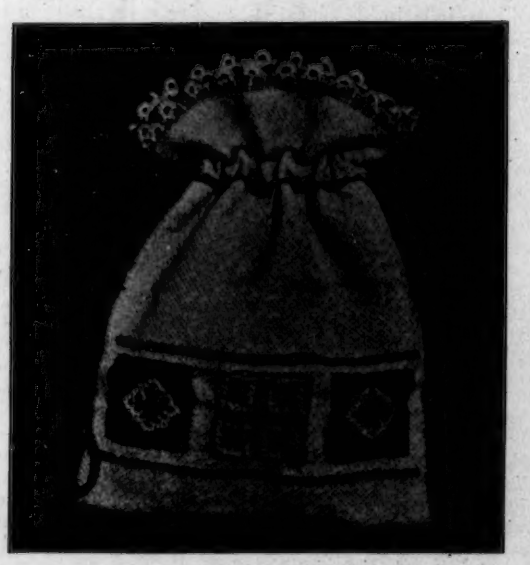
The next meeting of this association is to be held in Syracuse, N. Y., on January 15-16, 1915.

DECATUR, ILL. A complete machineshop and foundry has been installed in the high school.

WELLINGTON, KANS. The eighth-grade boys of the Manual Training Department have completed a number of four-drawer lockers for the work benches. Filing cabinets for the various buildings have recently been begun.

GIRARD, KANS. The girls of the high school Domestic Science Department recently baked 150 pies which they sold to the women of the town. They also accepted an order for pumpkin pies for a church social. The pies are not sold at a profit, but are disposed of at a price sufficient to cover the cost of the material in them.

FOND DU LAC, WIS. In connection with the work in interior decoration and design, the girls of the Continuation School will undertake the construction of shirtwaist boxes. The instruction is intended to give the girls an idea as to harmony in color, design and decorating and furnishing of rooms. In the work in interior decoration, the students will make use of the walls of the laundry department and storeroom. Stenciling of designs upon the walls will be done by the pupils under the supervision of the instructor.



Hedebo Bag Worked in Color by Student, Wadleigh High School.

Swedish Weaving, Combined with Beads, by Student, Wadleigh High School.

Interesting Bags Designed and Made in New York City High Schools. Shown at Recent Exhibition.

GENERAL NEWS NOTES

BOSTON, MASS. The first session of the compulsory continuation schools opened recently under the direction of Mr. W. Stanwood Field, head of the evening and continuation schools. Two general types of instruction are provided: (a) occupational courses, relating directly to trades, manufacturing and business, including salesmanship, practical arithmetic and shop work; (b) cultural courses, designed to widen the intellectual horizon, civics, commercial geography, history, etc. The studies undertaken will be connected with the pupil's vocation, or will help him to find one. The required four hours per week may be devoted to study all in one day, or divided into two two-hour periods or four one-hour periods a week. In some instances, classes have been opened at the places of employment.

NEW RICHMOND, WIS. The high school has begun a study of cattle-raising. Two steers have been purchased for use in connection with class work. Accurate records of the amount and cost of feed will be kept and the weights of the animals will be recorded. The cutting of the meat will be carried on in the presence of the girls from the domestic science department as part of their instruction.

MINNEAPOLIS, MINN. To provide practical work in Manual Training, the director has ordered that pupils begin the construction of desks, chairs, blackboards and other things needed in the schools. It is estimated the high-school students can make $5,000 worth of furniture and the grade pupils $2,000 worth.

BOSTON, MASS. Upon the suggestion of Supt. F. B. Dyer, the school board has ordered the establishment of the Brimmer branch of the Central Evening Industrial School as a separate institution.

GRESHAM, ORE. The board of education has taken steps to organize a union normal and agricultural high school to include eight school districts. It is proposed to introduce an agricultural course.

SAN JOSE, CAL. New courses in furniture construction, and mechanical drawing and furniture design, are planned for the evening school.

HURON, S. D. Agriculture, sewing and sloyd have been added to the course for the seventh and eighth grade departmental work.

INDIANA, PA. A vocational school, the first of its kind in the state, has been opened in an old academy building. The school is conducted under the joint management of the state, Young and Kiskiminetas townships, and Clarksburg and West Lebanon school districts. A joint board, consisting of a president, vice-president, secretary and treasurer has been appointed.

The school offers a four-year high school course, a four-year course in domestic science and a similar one in agriculture.

FORT MADISON, IA. The students of the Manual Training Department, under the direction of the instructor, have completed teeter-boards for the girls, and turning poles and boards for the boys for use on the playgrounds. Cupboards and tables for the schoolrooms are being constructed.

To provide practical experience for the pupils, and to eliminate the expense of tables bought from manufacturers, the students of the manual training department at Ashtabula, O., have undertaken the construction of tables for the mechanical drawing department. Mr. C. P. Meister has charge of the work.

WEST WARWICK, R. I. A Manual Training Department has been installed in the high school.

MUSKEGON, MICH. The hours of work at the Muskegon High and Hackley Manual Training Schools have been increased to six, providing for two double periods in both the morning and afternoon. The morning session begins at 8:30 and closes at 11:30. The afternoon session begins at 1:00 and closes at 4:00 o'clock, the last 45 minutes being devoted to sub-freshmen students.

KENOSHA, WIS. The large enrollment in evening classes in mathematics and mechanical drawing has proven that there has been a need on the part of machinists for this instruction which cannot be readily given in the shops. The courses are the first of a series which the night school offers in higher mathematics for machinists, applied mechanics and principles of machine design. A class in practical electrical work has been formed and men from the electrical trade have been designated as instructors. Classes in domestic science and dressmaking have also been begun under the direction of special teachers.

TRINIDAD, COLO. Manual training instruction has been extended to grade students thru the opening of additional shop centers and the appointment of a grade teacher.

INDIANAPOLIS, IND. The head of the manual training lunchroom has formed a class in practical cooking composed of students from the advanced domestic science classes. A vocational course in cooking will be begun at the opening of the next semester.

PATERSON, N. J. A domestic science class has been opened at School No. 12 under the direction of Mrs. Agnes Denner.

OWATONNA, MINN. The Domestic Science Department of the high school has begun the preparation of lunches for the pupils of the seventh and eighth grades wno cannot walk to their homes for the noon-day lunch.

SIOUX CITY, IA. Thru the co-operation of the extension department of the University of Iowa, electrical and mechanical engineering and shop mathematics have been introduced in the night school at the high-school building. The instructors are furnished by the College and the expenses for conducting classes are borne by the local school authorities.

MILWAUKEE-DOWNER COLLEGE, MILWAUKEE, WIS., offers short courses for homemakers consisting of ten-week courses once a week, five-week courses twice a week, and five-week courses once a week. The instruction includes the planning of meals for families, the preparation of salads and chafing dish cooking, candy making and confections, catering for special occasions, marketing and cooking of meats, fine laundry, household expenditures and accounts, textiles, shirtwaist making and making of cotton dresses.

NEW ORLEANS, LA. Seven new courses have been added in the night school, including salesmanship, commercial arithmetic, commercial law, freehand drawing, electricity, psychology and economics.

THE first corporation industrial school to be established in the state of Iowa, has been opened at Waterloo, Ia., by the Litchfield Manufacturing Company. The establishment of the school is the result of a shop course conducted, last spring, in the same plant by a member of

the engineering extension department of the Iowa State College. No tuition is charged.

SPRINGFIELD, MASS. The school board has approved a plan thru which Springfield will be one of five cities in the state to provide vocational training for young men and women. The school board will furnish the classrooms and the supervision will be in charge of Principal McNary of the Vocational School.

ST. LOUIS, MO. Short courses intended for tradesmen have been opened in the high schools.

LASALLE, ILL. A manual training class has been opened in the township high school under the direction of an assistant. The class is composed of 78 pupils, of which 29 are from the parochial schools. Four classes are held each Saturday, with sessions of one and one-half hours each.

THE NEW YORK BOARD OF EDUCATION has distributed 800,000 circulars in the public and parochial schools on "How to Buy." The circulars were prepared by the Mayor's Committee on Food Supply and are intended to be taken by the children into the homes for the mothers who need the training. It was found that in the tenement districts, children do a large part of the family buying, and the study of the circulars is intended to teach them the nutritive values of foodstuffs.

FOND DU LAC, WIS. The school board has installed a printing press and complete equipment in the boys' department of the Continuation School. New courses in cement work and brick work have been added. The girls' department offers instruction in cooking, sewing, and general designing and arrangement of household furnishings.

LANCASTER, KY. Plain sewing and fancy work for girls, and carpentry and agriculture for the boys have been introduced.

DULUTH, MINN. The night schools offer instruction in printing, cooking, sewing and manual training.

NEW ORLEANS, LA. Classes in drawing have been begun in the public schools for the benefit of the teachers. The instruction is given by supervisors and is intended to teach the underlying principles of the subject.

GREEN BAY, WIS. New courses in gas engineering and salesmanship have been added at the night school.

FT. ATKINSON, WIS. Domestic Arts instruction in the high school has been extended to include the students of the first-year classes.

THE MANUAL ARTS ASSOCIATION OF ALLEGHENY COUNTY, PENNSYLVANIA, has issued a handsomely printed yearbook containing the list of meetings to be held monthly during the current school year, the names of the officers and committeemen of the organization, its constitution and by-laws and the roster of members. The winter's program includes addresses by Mr. C. B. Connelley, Supt. W. M. Davidson, Dr. George Gerwig and other prominent educators of western Pennsylvania.

EL PASO, TEX. An exhibit of public school work has been placed in the Chamber of Commerce Building. This exhibit includes all branches of public school work, including samples of penmanship, composition work, arithmetic, geography, science, manual training, mechanical drawing, domestic science, domestic art, cardboard construction, primary handwork, kindergarten work with materials and printing. The aim has been to make this exhibit thoroly representative of all that is being done along modern lines in the public schools of the city so that visitors passing thru the city, who do not have time to visit the various schools, may see in a concise form what is being done in the El Paso schools.

DALLAS, TEX. A four-year course in Art and Design has been added in the high school. The work prepares students for enrollment in accredited schools of art and design and entitles them to receive credits in institutions of higher learning.

THE MANUFACTURERS' ASSOCIATION OF YORK, PA., last year set apart the sum of $110.00 to be awarded as prizes for general efficiency to five students in the High School Co-operative Industrial Department of the city schools. In determining the standings of the students special emphasis was laid on shop-work studies and shop efficiency. The particular points under shop efficiency were:

General adaptability.
Excellence in quality of work.
Speed of work without sacrifice of quality.
General faithfulness.
Display of mechanical aptitude for difficult work.

PHILADELPHIA, PA. Thirty-eight girls of the Penn High School class in salesmanship were recently assigned to two leading department stores for training by the directors of the store training schools. During the morning they listened to talks on the duties and responsibilities of a clerk. In the afternoon, accompanied by experienced women, they visited a number of departments for the purpose of acquainting themselves with the details of store system. As soon as they have mastered the technical part of salesmanship, they will be placed in retail stores for limited periods.

SEATTLE, WASH. Mrs. J. A. Reed, appointed some time ago to make a vocational survey of the city, recently presented a report showing that she had visited 919 families and recorded the working experiences of about 5,000 boys and girls. A detailed report, to be ready at a later date, will include statistics gathered for the guidance of the board.

NEW HAVEN, CONN. The Boardman Apprentice School has offered the use of its paint shop to those who desire to receive instruction in painting and decorating. Each branch will be taught at different periods of the year and will be in charge of an expert. The course includes instruction in the use and care of brushes, tools and appliances; properties, qualities and uses of materials; driers, their composition, nature and action; imitation painting, graining, marbling; sign writing, lettering, flatting, enameling; staining, varnishing, color mixing, stenciling and application of imitation effects including bronze, ivory, inlays, etc.

CHICAGO, ILL. Beginning February first, the school board will take control of the lunch rooms in all high schools. The management of the lunchrooms, together with the preparation and serving of lunches, will be under the direction of the household arts department. It is the belief of the board that better food can be provided and a saving of at least 15 per cent effected in the cost.

AKRON, O. In connection with the Domestic Science work at the Central High School, a class in sanitation has just been begun.

INDEPENDENCE, IA. A complete printing plant has been installed in the high school. The department will print all the cards and blank forms needed in the schools, and will also publish the high school publication.

BOSTON, MASS. Machinery for machineshop practice has been installed in the Austin prevocational center at East Boston. The setting up of the machinery apparatus was done by the boys of the respective departments of printing, bookbinding and machineshop work.

NEW BOOKS AND PAMPHLETS

Productive Poultry Husbandry.

By Harry R. Lewis. 536 pages. J. B. Lippincott Company, Philadelphia and London.

This is another of Lippincott's Farm Manuals and covers the subject of poultry raising and marketing in the comprehensive, scientific manner which characterizes the other volumes of this series. It gives the results of the research work at the various experiment stations in the United States.

One is somewhat surprised to learn that the total value of the annual poultry products of the United States is approximately $5,000,000, and that this value may be materially increased by scientific methods.

The book is prepared for the student, scientific farmer, fancier, and commercial poultry man. It may be used as a textbook in agricultural schools or in the reading courses of farmers' clubs. It will prove a very popular volume in the library of a rural school.

Twenty-first Annual Report, Western Drawing and Manual Training Association.

205 pages. 50 cents. Clinton S. Van Deusen, State Normal, Kent, Ohio.

This report presents in full the papers, addresses and discussions of the meeting held in Milwaukee last May. It is exceptionally well printed and contains six full-page illustrations of school work exhibited at the annual meeting.

The reports of this organization present annually the most progressive thought and records of achievement in the line of industrial arts in education. No library of educational publications is complete without a file of these reports.

Farm Animals.

By Thomas Forsyth Hunt and Charles William Burkett. 534 pages. $1.50, net. Orange Judd Company, New York.

This book is a companion volume to "Soils and Crops" and was prepared especially as a text for agricultural schools. It treats in detail breeds and breeding, feeding, sanitation, animal products, in fact the entire field of animal industry.

It is arranged in the form of forty-eight lessons, and is planned to cover three lessons a week for a sixteen weeks' course. Each lesson is preceded by a note to the teacher suggesting methods of treatment of the subject matter.

The subject is treated in a thoroly scientific manner, but in terms which the student can comprehend. The illustrations are numerous and well selected. Every agricultural or rural school should have this volume in its library if not able to use it as a textbook.

A Study of Foods.

By Ruth A. Wardell and Edna N. White. 174 pages. Price, 70 cents. Ginn & Co., Boston.

This book devotes twenty-two chapters to the subject of foods. Each chapter begins with a brief, concise statement relative to the particular subjects such as "Cereals and Cereal Products." Then follows a list of specific experiments with definite, clear directions. Following this list of "Laboratory Exercises" is a list of "General Exercises" such as questions based upon the experiments and points for further investigation. At the close of each chapter is a list of reference material bearing on the subject of that particular chapter.

The book is authoritative, well printed, well illustrated, and well bound. It should prove a useful book to anyone interested in the teaching of foods.

Simple Garments for Infants.

By M. B. Synge. Price, $1.25. Longmans, Green & Co., London and New York.

This is certainly a novelty in the matter of book making. Fifty pages of heavy, calendared paper are used to describe and illustrate the making of a large number of different garments.

The novel feature is the first half of the book, which is a pocket containing the complete, cutout paper patterns for the fifty-two pieces described in the second half of the book.

This will undoubtedly prove to be a great service to those in need of assistance along these lines.

Farmers' Bulletin No. 617 entitled "School Lessons on Corn," issued by the U. S. Department of Agriculture, contains outlines of twelve lessons covering such important points as the different kinds of corn, ways of judging corn, seed, corn-crop rotation, fertilizers, proper cultivation, and the food value of the crop. Rural school teachers, especially in the great corn-growing states, will find the bulletin a valuable aid in stimulating in their pupils a healthy interest in agriculture. Copies will be sent free so long as the supply lasts.

Outline of Courses.

Madison, Wisconsin, Continuation Schools. Prepared by A. W. Siemers, Superintendent. Paper, 62 pages.

How well the continuation schools of a Wisconsin city are doing their work and how closely they are adapting themselves to community needs is reflected in this outline. The Madison continuation schools include departments for "permit" children, all-day commercial students, all-day industrial students, indentured apprentices and (in evening classes) industrial workers. Courses in sewing and cooking are offered in both day and evening schools to women and girls. Copies of the handsomely printed outline will be sent by Mr. Siemers to any interested teacher upon payment of postage.

Bookbinding for Beginners.

By Florence O. Bean. 82 pages. $1.25. School Arts Publishing Company, Boston.

This little book is planned to cover the hand work of the fifth grade and is based on the work which is done in the Boston schools. The exercises are practical and have been given a thoro test. The name of the book is misleading as only five of the fourteen exercises described are problems in bookbinding, the larger part being devoted to extended descriptions of problems in paper and cardboard construction. It is not the author's intention to give the child an insight into the bookbinding industry, but the work is presented as "educational hand work." The text is padded with a large number of illustrations showing processes many of which are too simple to require illustrating. It is unfortunate that the title on the cover is so poorly placed as it gives the book an appearance anything but prepossessing.

Swift's Spelling Book.

Paper, 48 pages. Contains 1,666 words used commonly in the office of Swift & Company, Chicago. Originally compiled for use in the firm's continuation school, in which all messengers and office boys between the ages of fourteen and sixteen years are enrolled, this pamphlet is a fine example of corporation school textbooks.

"The Basketry Book," by Mary Miles Blanchard, is the title of a recent booklet which treats of the weaving of reed baskets. The author is the owner of the basketry shop, Bellefonte, Pa., and is a craftsman of many years' experience.

NOW, ARE THERE ANY QUESTIONS?

Readers are urged to ask questions concerning the Industrial Arts. The editors will reply to those questions which they feel that they can answer, and to other questions, they will obtain replies from persons who can answer them authoritatively. Questions should be addressed to THE EDITORS.

Blue Print Problem.

Kendallville, Ind. Q:—Can you inform me where I can get blueprints of some advanced problems for woodwork?

A:—Advanced problems for woodworking, in the form of blueprints, can be obtained from:

Dewey Blueprint Co., Manitowoc, Wis., and Dallas, Tex.
Colwin Photograph Co., Superior, Wis.
Manual Arts Press, Peoria, Ill.
Homecraft Co., Grand Rapids, Mich.
P. W. Hutton, Burr School, Chicago, Ill.

Upholstering Supplies.

Sterling, Illinois. Q:—Where can I buy upholstering material?

A:—Lusky, White and Coolidge, Chicago, and the Grand Rapids Upholstering Co., Grand Rapids, Mich.

Baskets.

Canton, Ohio. Q:—Will you kindly give me the name of a firm that sells Sweet Grass Baskets?—*J.*

A:—There is a New York firm by the name of Moore & Gibson which handles such baskets.

Books on Printing.

South Haven, Michigan. Q:—Please give me the name of a book on Printing?

A:—Practical Printing, by Stewart, Inland Printer Co., Chicago. Printing and Bookbinding, by S. J. Vaughn, Public School Publishing Company, Bloomington, Illinois.

Miscellaneous.

Pittsburgh, Pa. Q:—Will you please answer the two following questions:

1. I have some bronze castings and I wish to give them an aged appearance—that mouldy-greenish appearance that antique wares present. Can you advise some chemical that will do this, and the proportions in mixing?

2. I am designing a part of a machine which has a screw with a square thread. Can you tell me the number of threads, per inch, required for diameters ¼", ½", 1", 1¼", 1½" and 1¾" rods.

A:—The Scientific American Encyclopedia of Formulas states that bronze castings may be given the antique greenish appearance by the application of any one of the following:

(a) Vinegar, 1 litre; copper sulphate, 16 grams; sea salt, 32 grams; sal ammoniac, 32 grams; mountain green (Sanders' green), 70 grams; chrome yellow, 30 grams; ammonia, 32 grams.

(b) Vinegar, 1 litre; copper sulphate, 16 grams; sea salt, 32 grams; sal ammoniac, 32 grams; mountain green, 70 grams; ammonia, 32 grams.

(c) To obtain darker vert antique, add a little plumbago to the preceding mixture.

For bronzing, immerse the object in either of the foregoing mixtures, or cover it rapidly with a soft brush. The object will turn more or less green according to the length of time it is immersed or has been under the action of the fluid. The excess of the fluid is removed by means of a long haired brush, and after that the article is allowed to dry for 24 hours. A second or even a third coating may be applied if necessary in order to obtain darker shades. The bronze is finished by an energetic brushing with wax or olive oil, or a mixture of both.

2. Square threads are made "special" as there is no accepted standard for them. There is no standard of pitches but the common rule is to make the pitch just twice as great as that for a U. S. standard bolt of the same diameter. The depth is one-half the pitch but is sometimes made .01 of an inch greater to allow for clearance. The number of threads required for the above diameters would therefore be just one-half the number of U. S. standard threads for bolts of the same diameter. —*W. H. H.*

China Decoration.

Whalom Road, Fitchburg, Mass. Q:—Will you kindly let me know thru your question department whether china decoration is taught in any of the public schools in this country, and where these schools are?

If you are unable to tell this, can you advise where I could look for information about this matter?—*G. S. T.*

A:—The Editors have definite information about two schools only. Will readers of the MAGAZINE please report schools in which they know that china decoration is taught?

Hektograph.

Scranton, Pa. Q:—Will you kindly give me a recipe for making a hektograph that will be inexpensive and also serve to make copies of simple plans, etc., for the classroom?—*M. L. D.*

A:—Following is a useful formula for making a serviceable hektograph:

1 oz. Cooper's Gelatine.
6-7 oz. Pure Glycerine.

Soak the gelatine, over night, in cold water until all of it is swelled. Dissolve four ounces of common salt in a quart of water. Heat the glycerine over this salt water to a temperature of 200° Fahr. Pour off from the gelatine all the unabsorbed water and add the gelatine to the hot glycerine. Heat for an hour, stirring occasionally, but avoiding the formation of bubbles or froth. The composition is now ready for pouring into the pan to be used. Place the pan in a level position, in a cool place free from dust, allowing it to remain for at least five hours.

Before the pad can be used it is absolutely necessary to dampen the face of the gelatine with a wet sponge, allowing it to nearly dry before taking the first copy.

The writing to be copied must be made with hektograph ink, using a new steel pen. After the writing is dry, place it face down on the pad, rubbing it gently on the back to insure the perfect contact of every part. After remaining on the pad for about a minute remove the original and proceed to take the copies by placing the paper on the pad and removing it therefrom, always beginning at the lower left-hand corner.

After the pad has been used it should be washed lightly with a sponge wet in cold water. The pad should be perfectly dry before using again. If the pad is not used for two or three days the washing is unnecessary as the ink will be absorbed so as not to interfere with making a new transfer.

The kaolin formula by which the composition gelatinizes quickly may also be recommended:

Gelatine	100 parts.
Water	375 parts.
Glycerine	375 parts.
Kaolin	50 parts.

If the pad should become uneven or should be injured in any way, it can be restored by reheating it over the salt water, and cooling it as before described.

Failure in making the hektograph is due to inattention to the instructions; insufficient heating of the composition or the use of too much glycerine, which prevents gelatinization. The last difficulty can be remedied by using less glycerine or more gelatine.